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2. Saponified, that is, split into fatty acids and glycerine, both capable of absorption by the intestine.

THERAPEUTICS.

The above considerations enable us to understand more clearly the immense use Malt Extract and Cod Liver Oil, especially in combination, have in wasting diseases.

In Phthisis, for example, the digestive ferments are of lowered activity, and the introduction of a modicum of artificial ferment not only increases the actual amount of food assimilated, but the power of the enfeebled ferments to assimilate.

The almost constant rise of temperature above the normal is maintained chiefly at the expense of the fatty constituents of the body; hence the wasting. This, experience has shown, can best (putting aside questions of hygiene) be combatted by increasing considerably the amount of fat-food and carbohydrate food.

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Water	87·0	Water	87·5
Fat	3·5	Fat	3·8
Casein	3·0	Casein	1·0
Albumin	0·5	Albumin	1·2
Milk Sugar	4·5	Milk Sugar	6·2
Bacteria	very numerous	Bacteria	absent

Thus cow's milk contains an excess of casein which curdles in the infant's stomach, and a deficiency in soluble albumen and sugar. Condensed milk, on the other hand, contains an excess of sugar, but a decided deficiency in fat and soluble albumen, and a slight deficiency in casein. We have therefore endeavoured successfully to produce two complete Foods which are, physiologically, practically the same as the mother's milk. These are

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,, 14—Tannin, 1 grain.
,, 29—Rhatany and Cocaine (Ext: Kramer: gr: ii. Cocain: gr: 1-10th).

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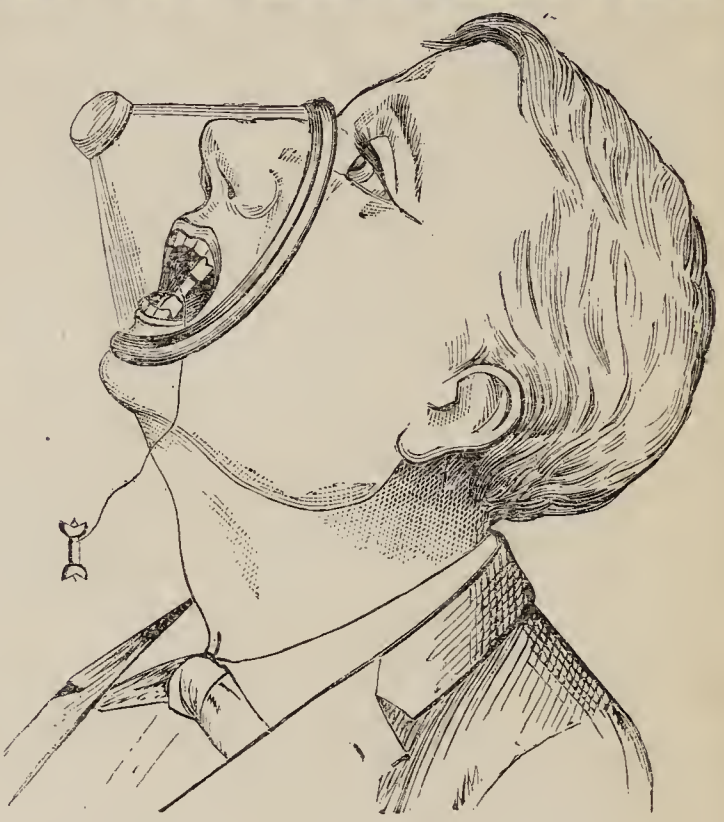

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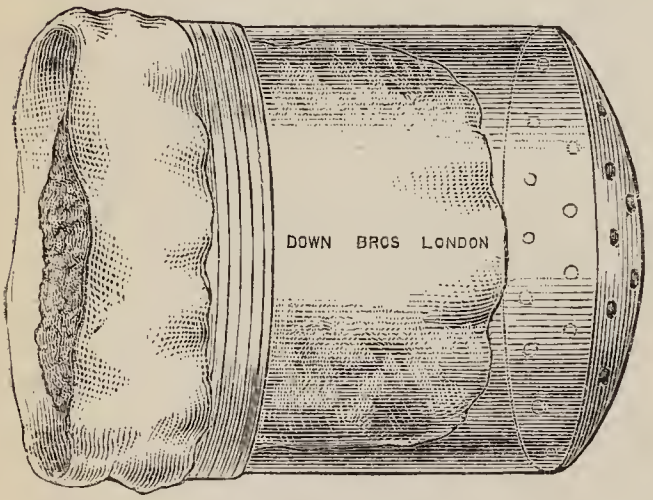

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VOLUME 112. JULY—DECEMBER, 1895.

(Issued January, 1896.)

LONDON
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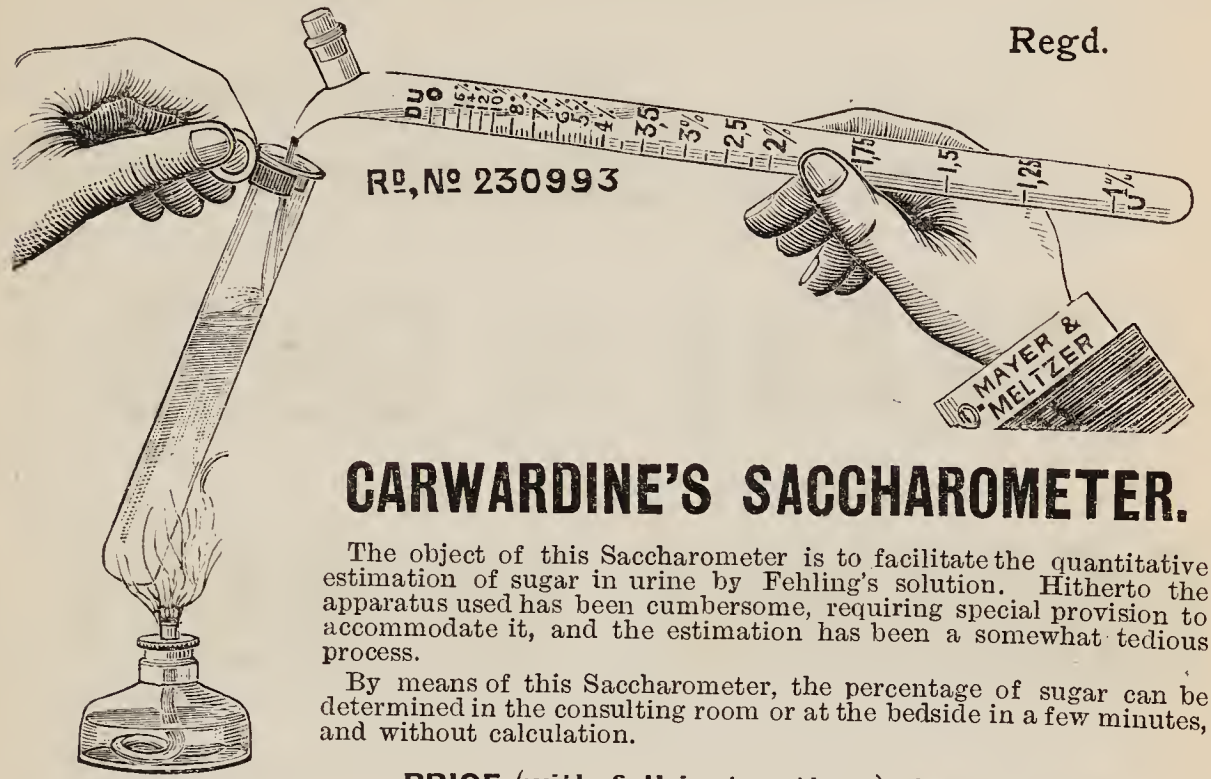

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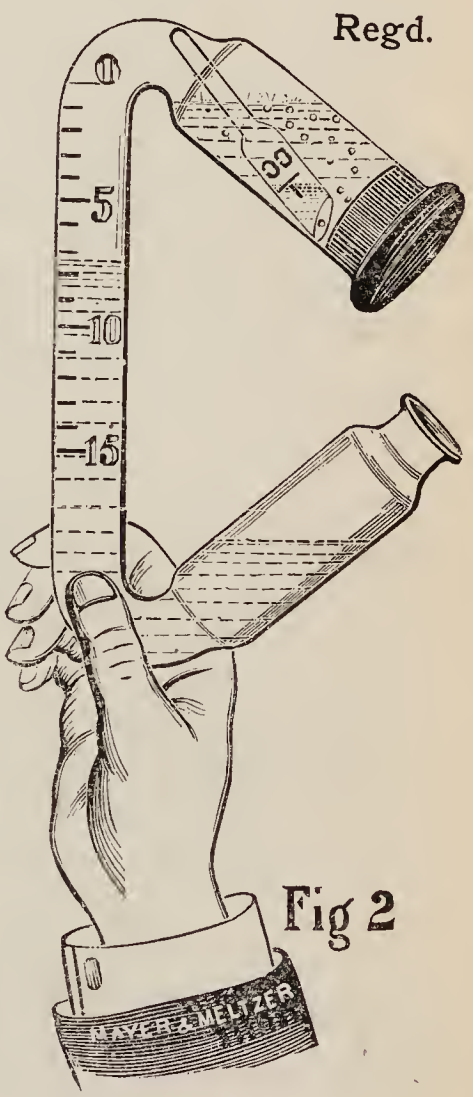

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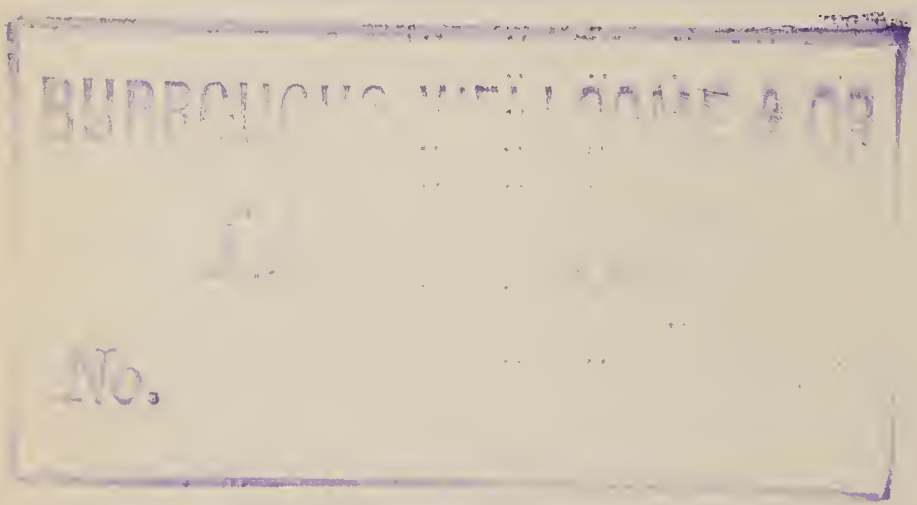


Synopsis.

An Abstract of the most Practical Articles in this Volume, with other Short Articles from the Medical Journals, showing the most important indications of Treatment, published by different writers during the half year.

Arranged Alphabetically.

GENERAL MEDICINE AND THERAPEUTICS.

ALCOHOLISM, RATIONAL THERAPY OF.

F. W. Antoninus Fabricius, M.D. (*Medical News*, May 4, 1895), divides his subject into various stages, dealing in order with acute, subacute, chronic, and periodic alcoholism. (1) Acute poisoning with alcohol manifests itself in one of two forms. One, the anæmic variety, is usually produced by the sudden admission of large amounts of raw spirits into the stomach, a dangerous and possibly fatal condition of shock resulting therefrom. The countenance is pale, the pupils dilated, the pulse feeble, rapid, and irregular. In such cases, immediate assistance to the heart is required to prevent fatal syncope, and before attempting to empty the stomach a hypodermic injection of nitro-glycerine with atropin, or of sal volatile, should be administered. The stomach-tube is then passed and the viscus emptied thoroughly and washed out, a little warm milk, olive oil, and chloride of sodium being left within it as a local sedative and mild laxative. This is to be followed by a hot pack if the temperature is subnormal, and by hypodermic injections of strychnine or nitro-glycerine if necessary. As the patient recovers he is very likely to fall into a deep sleep, from which he should not be aroused. In the second or congestive type of acute alcoholism the onset is far slower, and the patient is suffering from an alcoholic toxæmia rather than from shock, although the temperature may be subnormal and the pulse feeble. Narcosis is rarely so profound that stimulation, as by a sharp rap on the soles of the feet, is not followed by response. In these cases the stomach should first be washed out and a good dose of Epsom or Rochelle salts left within it. The action of the bowels and of the skin should be established as quickly as possible—the former, if necessary, by enemata superadded to the salts already mentioned; the latter by the use of the hot

pack and free massage. Convulsions are occasionally seen in this stage, resulting probably from a passive hyperæmia of the cortex, and should be treated by a hypodermic injection of morphia with chloral and bromide by the rectum, and possibly croton oil by the mouth, to induce rapid and vigorous purgation. (2) By subacute alcoholism the author means a condition when the drinking habit has become so established that enormous doses are required in order to satisfy the morbid craving for the poison which is slowly if surely disorganising the patient's nervous system. Any acute disease affecting such an individual is very likely to lead to the severest prostration, and possibly may manifest itself in an outbreak of delirium tremens. Complete abstention is not advised in such a condition, the chief aim being to substitute a milder and less injurious agent for the raw spirit, and also in diminished quantities. For the distressing morning sickness so characteristic of this affection nothing can compare with the gastric siphon, in the author's opinion. The stomach should be washed out daily at first, and preferably before the mid-day meal, with a weak alkaline solution, and if constipation is present a dose of salts may in this way be readily administered. An hour afterwards an antiseptic should be given in the form of salol, naphthalin, or sodium salicylate, whilst the general health is braced up by nux vomica, cinchona, and capsicum. A fairly generous diet, is admissible, varying according to the digestive powers of the patient. Insomnia must be treated if present, trional is recommended, although its power is soon lost, and it must be used alternately with other hypnotics. Chloral is contraindicated in old alcoholics, owing to its influence on the heart. To relieve the morning sickness various agents are suggested, such as a cup of hot tea or coffee the first thing in the morning, a glass of cold effervescing mineral water, an icebag or a hot fomentation to the epigastrium, or perhaps, better still, the administration of small doses of cocaine by the mouth. To reduce the morbid craving for the drink, nothing succeeds so well as rapidly increasing doses of strychnine given hypodermically, combined occasionally with hyoscyamine. (3) The treatment of chronic alcoholism where the viscera are extensively diseased is always extremely unfavourable. Iodides which have the repute of benefiting sclerosed tissues may be tried with care, but as a rule the chief indications are simply for symptomatic treatment. (4) Periodic alcoholism or dipsomania is looked on essentially as a monomania, which can be dealt with efficiently only in a suitable hospital or asylum. Alcohol must be strictly withheld, and powerful sedatives exhibited near the time of the expected attack. The prognosis is always extremely bad. (The Practitioner, September, 1895, p. 293.)

ANARCOTINE.

By far the most abundant alkaloids of opium are morphine and anarcotine, and while morphine represents the anodyne and hypnotic qualities of the drug, anarcotine represents, as I shall presently show, its antimalarial qualities. There are considerable differences in the proportion of morphine and anarcotine in the several varieties of commercial opium. Anarcotine was brought into prominent notice in India about fifty years ago. At that time quinine became very scarce and dear. Now, opium had long been held in high repute among the natives of India as a remedy and protective against malarial fevers. In 1857-9 Dr. Palmer treated at Ghazipur 546 cases of malarial fever with anarcotine, in doses ranging from 1 to 3 grains. Of these, 541 were cured, and only 5 died. In addition to these 546 officially reported cases, he treated with anarcotine a large number of other cases of malarial fever, amounting in all to little short of 1,000 cases.

Summing up his general experience, he states that in 70 per cent. the fever was arrested at the second paroxysm after the medicine was administered; in 20 per cent. the arrest was equally sure, but was not quite so quick; and in 10 per cent. the medicine did not appear to have any curative effect. Shortly afterwards Dr. Garden treated altogether 684 cases, and gives details of 194. Of these 194 cases 187 were rapidly cured by anarcotine. It only failed in 7 cases, or 3·6 per cent. The doses he employed ranged from $1\frac{1}{2}$ to 3 grains. It is to be observed that Dr. Palmer and Dr. Garden perceived a distinction between quinine and anarcotine, and recognised that there were cases of malarial fever which resisted quinine but yielded to anarcotine. Both observers also noted that in a certain percentage of the cases anarcotine proved wholly ineffective. These discrepancies are probably to be explained by the facts brought to light in recent researches on the infective organisms of paludal fevers. It has been shown that these organisms are of more than one kind, and that each kind corresponds to a particular type of malarial fever. There seems to be valid evidence that in anarcotine we possess a second antiperiodic of great power analogous to, but not identical with, quinine; and the point I wish to press upon those who have opportunities of studying malarial fevers, especially upon investigators in India, is the desirability of subjecting anarcotine to a fresh examination, with a view of ascertaining its value, as compared with quinine, in the different types of malarial infection, and in cases where quinine has proved ineffective.

From Sir W. Roberts' communication to the British Medical Association, 1895. (British Medical Journal, August 17, 1895, p. 405.)

APPENDICITIS.—Moot Points in the Treatment of.

Dr. Miles F. Porter concludes that (1) all cases of appendicitis do not require operation ; on the contrary, some cases are best treated without operation. (2) In cases requiring operation the appendix should be removed : (*a*) when there is no pus ; (*b*) when an endo-appendiceal abscess is present ; (*c*) as a rule, when there is a peri-appendiceal abscess that requires drainage through the general peritoneal cavity ; and (*d*) when there is general peritonitis without adhesions, with the exception noted. (3) A simple incision should be made and drainage provided in cases with circumscribed abscess, when this can be done without opening the healthy peritoneal cavity. An exception should be made to this rule in cases in which the removal of the appendix will not add to the gravity of the operation. (Medical News, September 14, 1895, p. 290.)

ARGONINE AND ARGENTAMINE AS A LOCAL APPLICATION.

Caseinate of silver, or argonine, has been introduced as a substitute for nitrate of silver as a local application. It is probable that the irritating effect of nitrate of silver on mucous membranes is deleterious, and that the beneficial effect of this salt depends on its bactericidal properties. Moreover, the insoluble compound formed by nitrate of silver with albumen militates against its efficiency as an antiseptic. Argentamine is a solution of phosphate of silver in ethylene diamine. It is strongly alkaline, and acts as though it contained free alkali ; it precipitates albumen to some extent, and is strongly irritating. A combination of silver with albumen, which is not alkaline and still possesses bactericidal properties, may be obtained by mixing a solution of a sodium compound of casein with silver nitrate, and precipitating with alcohol. The precipitate, after desiccation, is a fine white powder of neutral reaction, and is termed argonine. Argonine is readily dissolved in warm water, and with some difficulty in cold. It is necessary to observe certain precautions in order to dissolve the substance in water. One should begin by vigorously shaking some argonine with a little cold water, so as to separate completely all the particles of the salt ; then the vessel containing the mixture is heated over a water-bath heated to 90°, shaking it to hasten the solution. The watery solution, readily obtained in this manner in five minutes is a slightly coloured opalescent liquid, and may be made in any strength up to 10 per cent. Like all salts of silver, argonine, especially in solutions, is affected by light and should be kept in dark-coloured glass bottles. Argonine is readily dissolved in albumen. Thus on shaking it up with serum, one can obtain a 10 per cent. solution in serum. Solutions

containing albumen, as for example, white of egg, serum of bullock's blood, hydrocele fluid, are not precipitated by argonine, but if left for some time a scarcely perceptible deposit occurs. One cannot separate the silver by the ordinary reactions for salts of silver, thus chloride of sodium and alkalies do not give a precipitate in argonine solutions. The therapeutic effects of argonine have been investigated by R. Mayer, who concludes that argonine exerts no caustic action on the mucous surface; in this respect it differs favourably from argentamine and nitrate of silver. With a view to test their power of penetration into tissues, Mayer placed these three salts of silver on solidified gelatine, which he placed in the dark, with the result that argonine displayed this property in the greatest degree. Secondly, this author investigated the bactericidal properties of these three salts of silver. It would appear that the bactericidal action of silver depends not on the insoluble compound of albumen and silver, but is produced by the action of the metal itself. It is found, too, that a solution of argonine injected subcutaneously produces death with the ordinary symptoms of acute metallic poisoning. After a corresponding injection of nitrate of silver the animal lived a week. According to Aschner, argentamine is well borne by the deeper portions of the urethra in solution 1:1,000, 1:500, and also in solution 1:250. The anterior portion of the urethra is less tolerant, and one should not inject solution of greater strength than 1:2,000 or 1:1,000. Suppuration is increased, especially by strong solutions and only diminishes slowly after three or four days, and in every case astringents should be simultaneously used to prevent swelling of the mucosa. With these solutions used by means of Ultzmann's injector igonococci disappear by the tenth or twelfth day, *i.e.*, in a shorter time than is obtained by means of nitrate of silver. Argentamine, according to this author, penetrates the tissues, and is better in this respect than nitrate of silver. (From Therapeutic Notes in the Hospital, October 5, 1895, p. 13.)

ARSENIC, SUBCUTANEOUS USE OF.

Dr. Kernig (*St. Petersburger med. Woch.*, July 13, 1895) reports 35 cases from the Obuchow Women's Hospital. The internal use of arsenic was inadmissible on account of the condition of the digestive tract (diarrhœa, &c.). Some of these were severe cases of anæmia, cancer, tubercle, joined with gastro-intestinal catarrh, in which a large number of injections, 20 to 150, were used. In another group there was temporary disturbance of digestion, and only six to twelve injections were used until the internal administration could be begun. In many cases a favourable effect was at once produced, and as other means had been generally tried without effect, Dr. Kernig felt

warranted in attributing the result to the arsenic. At first he used 1 part of Fowler's solution with 2 of water, and a half of a Pravaz syringe full at a dose ; later, after the example of Professor Sacharjin, of Moscow, Fowler's solution undiluted. The solution must be clear. Seldom did the injection cause pain, and only once an abscess. His usual dose was 4 drops a day. No effect was produced on the intestines and no cutaneous eruption. (Journal of the American Medical Association, September 9, 1895, p. 418.)

ARTHRITIS, TREATMENT OF GONORRHŒAL.

Mr. Jonathan Hutchinson (*Archives of Surgery*, January, 1895), recommends the following :—Aconite and tincture of the seeds of colchicum if the attack be acute, with alkalies and quinine. If the attack be chronic, quinine is of the utmost importance. In all cases, and in all stages, counter-irritation should be liberally used. For acute synovitis this is best secured by the repeated application of large blisters at a little distance from the affected joint ; if the case be more chronic, mustard leaves or the capsicum pack should be employed. The last mentioned Mr. Hutchinson regards as invaluable in chronic joint affections attended by pain. It is applied as follows :—First the joint is well washed with hot water and soap until the skin is somewhat reddened. Then flannel soaked in tincture of capsicum is applied so as to cover the whole joint, and a good width above and below it. Over this a large sheet of oiled silk is bandaged firmly on. This pack should be kept on for half an hour every night on going to bed. Some persons can go to sleep with it on, but usually it gives too much pain. (Dr. Hawthorne's abstract in the Glasgow Medical Journal, May, 1895, p. 396.)

BACTERIOLOGY IN PRACTICAL MEDICINE.

The following is taken from a paper read by Dr. Jefferis Turner before the Queensland Medical Society :—The use of bacteriological methods in diagnosis is one which no practitioner can afford to ignore. There are already four diseases in which an exact diagnosis can be made by these methods when all the clinical data are insufficient. These four are tuberculosis, leprosy, cholera, and diphtheria. For the recognition of tubercle and leprosy bacilli staining methods suffice, and these may be said to have already become part of our medical routine. For the demonstrations of the organisms of diphtheria and cholera —and of influenza, which may also be diagnosed bacteriologically—cultivation methods are indispensable. Of these three diseases, diphtheria is the one which most concerns us in this city. Since the research of Lœffler ten years ago on the bacillus of diphtheria, the pathology of this disease has been

thoroughly elucidated by many observers. The diagnostic value of the presence of the bacillus in the membranous exudation of the diseased area must now be regarded as established. The mere presence of a membranous exudation on the tonsils can no longer be regarded as diagnostic ; for, as has long been known, the formation of a pseudo-membranous exudation is merely the reaction of the mucous membrane to an irritant of a certain degree of intensity. Cases of membranous tonsillitis occur, which to ocular inspection are indistinguishable from true diphtheria, but in which the bacillus is absent. In these cases the characteristic diphtheritic poison is absent, and the mortality comparatively trifling. Clinically the only single absolutely characteristic symptom of diphtheria is the peculiar form of paralysis developed in the later stages of the disease. In the early stages no diagnosis can be considered satisfactory unless the bacillus diphtheriæ has been cultivated from the false membrane or pharyngeal secretion. A positive result may be accepted as of practically absolute value. A negative result is, of course, not of absolute value, depending on the skill of the observer, the stage of the disease, and other accidental difficulties. Nevertheless, the absence of the bacilli in properly made cultures, especially if confirmed by a second observation, makes it in the highest degree probable that the disease is not diphtheria, provided that the cultures are made from material taken from freshly formed membrane. In competent hands errors will be very rare ; indeed, the bacilli may often be detected long after the membrane has disappeared. (Australasian Medical Gazette, May 15, 1895, p. 201.)

BACTERIOLOGICAL TREATMENT OF DISEASE. —Malignant Disease.

Coley, of the New York Cancer Hospital, relates (*Medical Record*, May 18, 1895) his further researches into the use of erysipelas toxins and erysipelas serum. They confirm his first conclusions. He has improved his method of treatment by using the blood serum of a horse subjected to the action of erysipelas. He relates the following cases :—(1) A patient with a rapidly recurring and inoperable carcinoma of the breast was treated for several weeks with the toxins ; the growth of the tumour was checked, but there was no decrease in size. The serum was then injected for two weeks, but without any apparent effect. (2) A woman, aged 50, had an enormous inoperable carcinoma of the breast. The injections produced a diminution in the size of the tumour : later, erysipelas toxins were substituted for the serum. In two months the growth was reduced to one-half its size. Then uncontrollable and fatal hemorrhage was produced by the erosion of a vessel. (3) In a case of probable carcinoma

of the neck and sternum the tumour ceased to grow, and became less fixed and slightly smaller. The author observes that the doses have not been pushed to anything like the probable limit of safety. He is now using much larger doses in eight cases of carcinoma and sarcoma. The author then relates three cases of epithelioma similarly treated. In one case, already published, of inoperable epithelioma of the chin, lower jaw, and floor of the mouth, he could find no evidence of the disease eight months after the injections had been discontinued. In the second case of recurrent epithelioma of the face the growth entirely disappeared. In a third case of inoperable epithelioma of the tongue the growth became smaller and less fixed. (British Medical Journal Epitome, p. 3.)

CARDIAC IRREGULARITY IN CHILDREN.

Heubner (*Zeitschrift f. klin. Medicin*, Bd. xxvi. H. 5 u 6) contributes an important study under this heading. He excludes cases of arhythmia due to tubercular meningitis and to pronounced cardiac inflammations, and distinguishes eight classes:—(1) The simplest case is that of irregularity after poisoning. An instance is quoted of a child who had eaten stramonium-seeds; on the third day there was decided irregularity of the pulse, which disappeared on convalescence. Large doses of digitalis and of opium have been noticed to produce the same effect. (2) Closely allied are cases of disturbed rhythm from digestive troubles. Recent investigations suggest in many severe forms of indigestion the circulation of some poison in the blood—a form of auto-intoxication. He gives an example in a child of six years suffering from gastric disorder, who began to show cerebral symptoms, vomiting, &c. There were rise of temperature, very irregular, intermitting pulse, retraction of the head, and drowsiness. It was regarded as a case of auto-intoxication, and this was confirmed by the favourable issue and the appearance of acetone in large amounts in the urine. Another case showed a slow, unequal heart-beat. (3) Cardiac irregularity may be met with in abdominal affections where no grounds exist for considering it due to poisoning. A case of appendicitis, in a girl of eight years, is quoted; decided intermittency of pulse was present, and also on a second occasion after an attack of indigestion. (4) Arhythmia in the course of infectious diseases is divided by Heubner into two groups—(*a*) that during the development and height of the disease; (*b*) that observed during convalescence. The first group is much the rarer. Many observers mention it in typhoid fever, but Heubner has had no experience of it. The second group is well recognised. In diphtheria it is often present, and also not infrequently in scarlet fever, of which several instances are quoted; measles

and croupous pneumonia frequently give rise to it, and sometimes it has been observed by the author late in typhoid fever. (5) In anæmic and nervous children irregularity is frequently noted, and is apt to lead to a false diagnosis: in rhachitic, feeble children, from two to four years old, such irregularity is too readily accepted as an indication of the imminence of tubercular meningitis. (6) Intestinal parasites are said to cause irregularity of pulse, but no evidence of it has occurred in the author's experience. (7) Under certain physiological conditions irregularity may be observed, as in emotional states, sometimes during sleep, and occasionally following a warm bath, with subsequent cooling. (8) Da Costa has described a disturbance of rhythm which appears to be the only element of disease, the child seeming otherwise well, and all the other causes being satisfactorily excluded. During febrile attacks the irregularity disappeared. Discussing the mechanism of irregularity under these various conditions, Heubner refers to nerve-influence—a disturbance of the regulating nerves of the heart. This is the explanation accepted for tubercular meningitis, increased intracranial pressure affecting the centres in the medulla. Irritation of peripheral nerves, such as the splanchnic depressor, disturbs rhythm, and would account for a continuance of such a symptom with nausea and vomiting. When due to poisoning the explanation is more difficult; but it is probably a result of action upon the nerve-centres or the cardiac muscle. The cause of arhythmia in anæmic, rapidly growing children is involved in doubt, though the suggestion of a relatively small arterial system is founded on experimental evidence. The treatment of cardiac irregularity in children requires a careful consideration of causes. If reflex, the irritant should be removed. When due to poison, the stomach and intestines should be emptied and a plentiful supply of water should be given to cleanse out the system. The idiopathic form requires moderate movement, light gymnastics. frequent small meals, and sea-baths. The anæmic variety demands suitable diet, hygiene, and medical treatment. (The American Journal of the Medical Sciences, May, 1895, p. 605.)

CHLOROSIS.—Treatment of.

Prof. Hayen (*Jour. de Med. et Chir. Prat.*, No. 9, 1895) announces that the treatment of chlorotics is comprised under three heads—absolute rest, appropriate diet and the use of iron. Rest in bed, when sufficiently prolonged, is of the greatest importance, checking the too rapid destruction of the red globules. The choice of food is made subordinate on account of the dyspepsia which generally accompanies chlorosis. There is often a hyperpepsia of medium degree and some dilatation. In such cases the food at first should consist of milk and raw meat; later on,

Hayen recommends underdone eggs, the easily digested varieties of fish, purèes of green vegetables and fruit in the form of compôte. No bread is allowed for four or five weeks. In about 20 per cent. of the cases the gastropathic state is more pronounced and needs more care. Sometimes there is intense parenchymatous gastritis, with marked dilatation ; again, there may be a gastritis which has caused diminished glandular secretion and a hypopeptic state. In the former case, in addition to restricted diet, massage is to be used, and lavage also, when abnormal fermentation exists. By the use of these measures it is generally possible to begin ferruginous treatment in from two to four weeks. In hypopeptic conditions, however, iron may be used from the first, giving it before meals and hydrochloric acid a half hour after eating. As to the best salt of iron to exhibit, Hayen has been convinced for a long time that it is the protoxalate. Under its use we can see the patients regain their colour and the duration of treatment is reduced to the minimum, which is very important in those with stomach complications, which often persist after the chlorosis has been cured. (The Journal of the American Medical Association, June 29, 1895, p. 1025.)

CHOLERA.—Haffkine's Protective Inoculations.

By Surgeon Lieut.-Colonel Crombie. Haffkine's procedure consists of two stages, namely, the inoculation of first, a weak, and then of a strong virus. The first may be regarded as merely a preparatory operation, enabling the system to receive the second, or strong virus, without harm ; but, although the figures which I am about to give indicate that this first weak virus has a very considerable degree of protective power, it must only be regarded as preliminary to the second operation, without which M. Haffkine's procedure is incomplete ; and in no instance can his operation be said to have failed, when only the first or preparatory inoculation has been resorted to, as has unavoidably been the case in a large proportion of instances. The weak virus is obtained by passing air and oxygen over a cultivation of common bacilli on agar at an elevated temperature. By this means the virulence of the bacillus is so reduced that, when introduced below the skin, it causes only a slight local œdema and a mild constitutional reaction. This modification of the bacillus once obtained in this way remains permanent in all subsequent cultivations in agar ; it becomes, in fact, a permanent variety of the comma bacillus, reminding one of those which have so long engaged the attention of Dr. Cunningham, and it retains its mild character through indefinite succeeding generations. The second virus, on the other hand, is one of exceeding strength, and is capable of causing death in a guinea-pig in

eight hours. When employed after the first virus, however, it again only gives rise to slight local and general disturbance, showing that the body has acquired an immunity against its effect as a consequence of the use of the former milder virus. This acquired immunity has been found existing five months after the inoculation of the milder virus, and it is, therefore, probable that it is of longer duration, but the typical procedure consists in injecting the second or strong virus five days after the first. It takes another five days before the constitutional and local symptoms produced by the second virus entirely subside, and not till then can it be said that the operation of anti-choleraic vaccination is complete. (Indian Medical Reporter, September 16, 1895, p. 173.)

CLIMATOLOGY.—Scilly Isles as a Health Resort.

I propose very briefly to consider the class of cases likely to be benefited by residence in these highly-favoured islands. Life on the islands may, so far as climate is concerned, be very aptly compared to life on board ship, with this very great difference, that the conditions of living are much more favourable on the islands to that on board ship, where confinement in close and badly ventilated cabins is a contingency of more or less frequent occurrence. Then, if a steamer, there is the unpleasant smell and the continuous vibration caused by the engines; and in any kind of vessel there are noises incidental to the working of the ship. Then there is, for the invalid at least, the monotony of the voyage, and the want of ability to communicate with one's friends speedily and easily. The limited amount and want of variation in the exercise, too, that can be taken is a decided drawback. Then again, there is the matter of food supplies. These at the very least can neither be so good or fresh as can be obtained on shore.

Dr. Williams, in his Lumleian lectures, already more than once quoted, says the cases in which sea voyages are indicated are:—"(1) Chronic pleurisy and chronic empyema; (2) chronic bronchitis; (3) various forms of scrofulous disease, including scrofulous phthisis; (4) hemorrhagic phthisis; (5) tuberculous excavation, where the cavity is limited and the disease unilateral; (6) neuroses, the result of overwork, and especially insomnia. With regard to the forms of phthisis specially benefited by sea voyages, I would place the scrofulous or strumous form first; next, the hemorrhagic type, marked by limited consolidations and large recurrent hæmyptysis; next, the chronic unilateral cavity cases, without great local irritation. Whether sea air promotes the fibrotic process or no, I cannot say; but, to judge by my cases, contraction of cavities takes place very frequently during sea voyages. Cases of early

consolidation do not progress so well as in certain other climates, though they do not fare badly." I think that the climate of Scilly would suit such cases admirably, as, from what I have pointed out, the Scillies may be looked upon as quite comparable, though in many respects very much superior, to sea voyaging. Then, lastly, for rachitic and delicate children, the free and open beaches and sands, and the breezy downs furnish a playground unsurpassed in health-giving qualities by any part of the United Kingdom. The limits of this thesis would not permit, nor, indeed, have I accumulated sufficient material to be of any value, in furnishing a detailed statement of cases which have been benefited by a more or less prolonged residence in these islands. (From Dr. Thornton Macklin's paper, Glasgow Medical Journal, September, 1895, p. 184.)

Dr. Symes Thompson and Dr. Lazarus-Barlow treat of the climate of Devonshire. Its therapeutic effects are considered mainly in reference to three classes of disease, (1) respiratory, particularly phthisis ; (2) renal ; and (3) rheumatic, with allied and subsequent conditions. As regards phthisis, the advantages are said to be that the air is moist and unirritating, that there is a large average amount of sunshine, and that the temperature is comparatively equable. The disadvantages are the moistness of the air, the physical character of the ground, and the prevalence of easterly winds in spring. "Winter cough" is greatly benefited, and asthma of the bronchial and cardiac forms is often relieved by residence in Devonshire. South Devon is marked serviceable in cases of recurring catarrh of an irritative type, particularly in children ; but the climate is not favourable for healthy children. For the subjects of renal disease, Exeter, Sidmouth, and the more dry, elevated, and sunshiny resorts in the neighbourhood "are perhaps the least injurious spots in England." Cases of rheumatism ought not to be sent to Devonshire, which appears to be generally unsuitable for persons suffering from cardiac disease. The climate is not sufficiently bracing for scrofulous children, but it is especially favourable to old and debilitated persons, and to convalescents from most illnesses, the principal exception being acute rheumatism. Drs. Symes Thompson and Lazarus-Barlow also deal with the climate of the Channel Islands. The strong point in these resorts is the sunshine, their record in this respect being considerably in excess of that of any other part of the United Kingdom. The Channel Islands are remarkably free from acute diseases. Phthisis is mainly seen in the acute form and does not seem to be affected by the custom of inter-marriage, which, owing to the existence of the law of gavelkind, is very general among the natives. The moisture of the air makes the islands unsuitable in renal disease and in all rheumatic and

neuralgic affections, and its salt-laden condition renders it injurious to all forms of eczema. On the other hand, the value of the Channel Islands for delicate strumous or rickety children is said to be immense. (From Report of Royal Medico-Chirurgical Society, British Medical Journal, July 27, 1895, p. 234.)

COFFEE, CHRONIC POISONING BY.

At a recent meeting of the *Société médicale des hôpitaux*, a report of which is published in the *Gazette médicale de Paris* for July 20, M. Gilles de la Tourette read a paper on this subject, in which he said that the symptoms due to chronic coffee poisoning should have special attention called to them, as very often they might give rise to errors in diagnosis which would be very prejudicial to patients. Chronic caffeism was nearly always confounded, he said, with alcoholic troubles, particularly with those affecting the digestive and nervous systems, for the two poisons produced effects which singularly resembled each other. Caffeic poisoning showed itself chiefly in digestive and in nervous troubles, the symptoms of caffeic dyspepsia very nearly resembling those of alcoholic gastritis, such as catarrhal gastritis, saburral tongue, a marked loss of appetite, &c. The distaste for solid food was such that the patients would eat nothing but bread soaked in coffee, and in this way the absorption of the poison was increased and became more and more marked. Nausea, vomiting, and acid eructations, which were sometimes very painful, supervened, and the patient became emaciated and fell into what M. Guelliot called caffeic cachexia. The circulatory system was also influenced. Palpitation was rare, but a diminution of the pulse was especially observed. The nervous symptoms were frequent and were second in importance to the digestive troubles. There was insomnia, or, when the patient was able to sleep, there were dreams and terrible nightmares. Very frequently a decided trembling was noticed in the limbs, also a fibrillary trembling of the lips and of the tongue, which might become generalised in the other muscles of the face. Painful cramps of the thighs and of the legs might be observed, also troubles of the sensibility, which were not so marked in some patients. The reflexes generally remained unaffected. These different symptoms of coffee poisoning were not persistent, as discontinuing the use of the poison was rapidly followed by great amelioration, certainly much more prompt than that which followed giving up the use of alcohol. (New York Medical Journal, August 10, 1895, p. 189.)

CRETINISM, SPORADIC.—Treated by Thyroid Extract.

Telford Smith (*Journal of Mental Science*, May, 1895), says :—
In each of the four cases here described the improvement was

well marked. The chief effects of the treatment were rise of temperature almost after the first dose, and gradually approaching the normal as treatment was continued ; desquamation of the skin in two or three weeks, with return of perceptible perspiration ; subsidence of the myxœdematous condition of the subcutaneous tissues, with general loss of weight ; comparatively rapid increase in height, and appearance of previously delayed second detention ; disappearance of marked constipation ; improvement of manner and disposition from sluggish sulkiness to lively intelligence and spontaneous activity. Two conditions afford a useful guide in treatment. If the temperature can be kept at about 97·5° to 98° F., and no emaciation is set up, the physiologically useful dose has been gauged. Small doses are recommended at the commencement of treatment—3 grains per day, gradually increased to 5 or more according to the effect produced. (Dr. Stewart on Nervous Diseases and Insanity, Glasgow Medical Journal, June, 1895, p. 464.)

DIABETIC FLOUR, A RATIONAL.

H. Stern (*Medical News*, June 8, 1895,) recommends the use of the kernel of the pea-nut (*Arachis hypogœ*) as a food for diabetic patients. The average of all available analyses shows that it contains 29 per cent. of proteids, 49 per cent. of fat and 14 per cent. of carbohydrates in the dry material. The oil is extracted on a large scale in European countries, and utilised as a substitute for olive oil for lubricating purposes, and in the manufacture of soap. The meal contains about 52 per cent. of proteids, 8 per cent. of fat, and 27 per cent. of carbohydrates. The author points out that the pea-nut is one of the cheapest food-stuffs known to us ; it contains a large amount of nitrogenous and fatty matter, and little carbohydrates. Directions are given for the preparation of a "diabetic pea-nut flour." The pea-nut kernels are boiled in water for half-an-hour to extract a portion of the oil which they contain. The kernels are then dried and pounded into fine particles by a rolling-pin. The pounded kernels are then placed in boiling water, acidulated with tartaric acid or vinegar, in order (1) to extract saccharine elements ; (2) to overcome the smell and taste of the pea-nut ; (3) to prevent emulsification of the remaining oil. After having undergone a thorough boiling with acidulated water, the ground kernels are subjected to dry heat and then rolled into fine flour. The flour may be used in the form of porridge, with milk ; bread and biscuits can be baked from it ; but the nicest and most easily digestible form in which it can be utilised is the German pancake. [For the details with respect to the preparation the reader is referred to the original.] The author begins with 15 grammes of the flour daily, and gradually increases it

up to 25 grammes daily in the second week, 35 grammes daily in the third week, and so forth. (Dr. Williamson, *Medical* Chronicle, July, 1895, p. 270.)

DIPHTHERIA, CARDIAC PARALYSIS IN.

Veronese, in an exhaustive paper on this subject (*Wien. Med. Woch.*, Bd. vi, Nos. 17-22), says that no case has yet appeared in literature where death occurred entirely without warning, some suspicious symptoms having always been present for twenty-four hours at least. It attacks boys more frequently than girls, and is most common between the ages of six and fourteen. Children under six are almost never attacked, probably because in severe cases they usually succumb early in the disease ; but adults are not altogether exempt. It varies in different epidemics, but occurs also among sporadic cases. Puny children, especially the tubercular and nervous, are more apt to be affected than the strong, yet in all cases it is preceded by severe general or local symptoms. The latent stage, that is, the period between recovery from the local process and the appearance of cardiac symptoms, lasts usually from two to eight days, but may cover from four to six weeks, although in the latter case the cardiac paralysis is the termination of a severe general post-diphtheritic paralysis. The reason that the cardiac appears so much earlier than other forms of paralysis is due to the fact that, owing to the delicate mechanism of the heart, a tiny lesion, by affecting important nerve centres, may produce most serious results on an organism already weakened or degenerated by the diphtheritic process. In the so-called latent period a series of suggestive symptoms will not escape close observation, of which the most important are great prostration, apathy, somnolence by day, sleeplessness and restlessness at night, increasing dilatation of the heart with corresponding changes in the sounds, alterations in the character and rhythm of the pulse, increased frequency of respiration and signs of pulmonary œdema, nausea, more or less constant pain in the epigastrium, and increasing albuminuria. Fever is never present, at least as a result of the cardiac affection. An attack of syncope announces that the disease has reached its height, but the first one is rarely fatal. In cases which recover after two or three anxious days, the symptoms of stasis due to cardiac weakness begin to pass off, œdema rarely lasting more than two weeks ; but convalescence is very slow, requiring from two weeks to six or more months. Permanent lesions, apart from a mild grade of hypertrophy, do not seem to follow post-diphtheritic paralysis. The prognosis is very doubtful, though not always fatal ; the milder the symptoms and the slower their development the better the outlook. The anatomical lesion may

be a parenchymatous degeneration of the heart with interstitial changes, fatty degeneration of the myocardium, parenchymatous and interstitial degeneration of the vagi and the nerves and ganglia of the heart, or degeneration of the sympathetic, especially the ganglion and plexus celiacus. It is probable that death is due less to degeneration of the heart than of its nerves and ganglia, and reflexly to degeneration of the sympathetic, especially the celiac plexus. (Boston Medical and Surgical Journal, August 29, 1895, p. 210.)

DISINFECTION OF ROOMS AFTER INFECTIOUS DISEASES.

The absolute disinfection and sterilisation of a room in which a patient with an acute infectious disease has been treated, is considered at present extremely difficult, if not impossible. We refer, of course, to rooms in ordinary houses which cannot be washed down with large amounts of strong antiseptic solutions. The usual procedure of burning quantities of sulphur, of washing the walls and removing all movable pieces of furniture, is considered to be all that is practically possible. Dr. G. Barnet has been working, in co-operation with Dr. Trillat, for the purpose of determining whether a better method cannot be found for the disinfection of infected rooms, and he claims to have obtained successful results. The substance which he used is a solution of formaldehyde in alcohol. He has devised an apparatus by which the vapours of this substance are diffused through a room, and he says that with it he can disinfect with absolute certainty in six hours 300 cubic metres of air. Cultures of various specific micro-organisms placed in the room are rendered absolutely sterile by this process. The vapours of this formaldehyde have no injurious action upon the furniture of the room, and they disappear rapidly after a few hours of airing. The process suggested and the apparatus devised appear to us to be rather expensive, but if they do all that Dr. Barnet claims they will prove a very useful addition to our methods of fighting disease. (Medical Record, October 12, 1895, p. 521.)

ELECTRIC SHOCK.—Resuscitation from.

P. J. Gibbons, M.A., M.D., says :—When a person receives an electric shock sufficient to produce suspended animation, the breathing and heart's action cease ; the eyelids are generally half closed, the pupils dilated ; the tongue approaches to the under edge of the lips ; finally, coldness and pallor of the surface increase. When one in whom the vital spark may possibly not yet have fled is found, two objects should be aimed at, viz.:—first, to restore breathing ; and second, to promote warmth and circulation. When an electric-shocked person is found, he must

be treated on the spot in the open air. On no account waste precious time by removing him to a house, unless the weather is intensely cold. Secure a return of breathing, first protecting him, if necessary, from the severe cold by coats, blankets, &c. Keep bystanders off fifteen or twenty feet, place him on his back, loosen all tight clothing, remove false teeth and foreign bodies from the mouth and nose. To excite breathing, resort to Sylvester's method, or any of the well-known methods for resuscitation from drowning, remembering there is no water to be expelled. If no success follows, imitate breathing by inserting the distal end of the tube of my apparatus into the nostrils or the mouth, preferably the nostrils, as in this way the air, during inspiration and expiration, comes in contact with the lining membrane of the nasal chambers. In doing so it allows the membrane to carry out its normal physiological action, and by this means we get so much nearer a normal respiration. The air thus breathed is both warmed and satured to a certain extent with watery vapor, and much of the dust and other foreign matter floating in the air is removed by adhering to the moist mucous membrane. Or, instead of inserting the distal end, as mentioned above, my face-mask attachment may be used. The nostrils should be excited with snuff, hartshorn, or smelling salts. This can be readily done without the removal of the tube by allowing the exciting agent to enter the bellows with the fresh air or oxygen. *To Restore Circulation.*—The above measures are directed wholly to restoring the breath. This is the first necessity. There should be no rubbing of the surface while this is going on. Should the inclemency of the weather demand the removal of the patient indoors, the above movements must be kept up even while he is being removed, and on no account should he be taken into a warm or crowded room. When the patient begins to breathe, commence rubbing the limbs. Rub them upward with considerable briskness and pressure. Use silk somewhat warmed; throw a quilt or blanket over the patient, and continue friction under this. The friction in this way will create electricity and heat. Put warm bricks or bottles of warm water at the feet, between the thighs, and under the armpits; but be very careful not to have these things too warm, or much above the temperature of the healthy body. Physicians may insert the distal end of my apparatus through the mouth into the laryngeal entrance, as they would introduce a tube for intubation of the larynx. Some will probably find it more convenient to perform tracheotomy and insert the tube into the trachea. They can also use electric batteries to keep up body heat, body electricity, and to excite the heart and the lungs to action. My method, or any other used, should not be discontinued for at least three to six hours, and the operator should

not be discouraged if he sees no symptoms of returning life until this amount of time has elapsed. Why no symptoms of life are seen for one or two hours, and may be shown later, I shall not attempt to explain, but such is the case in my experience. Before giving up all hope I recommend the injection of an alkaline solution into the body, such as has been tried upon people who have bled to death. When we cease artificial respiration Nature may refuse to perform her duty, and we may be obliged to resort to the artificial method again. Sometimes it is necessary to carry on artificial respiration from ten to forty hours after life has been restored. During this time we may test Nature four or five times and find her not able to be self-sustaining; therefore we should keep the artificial aid until that time arrives when nature will perform her functions. My apparatus is a simple double bellows. It is so constructed that when the handle of the bellows is raised the air rushes from the patient's lungs into one apartment of the bellows; simultaneously the other apartment is filled with fresh air through a tube on the reverse side. This air is forced into the lungs by the compression of the handles. The apparatus is designed to resuscitate persons who have undergone electrical shock, taken poison, been long immersed in water, been subjected to pressure on the centre of respiration, or suffered from similar misadventures. Forced respiration will restore suspended animation more expeditiously and more certainly than any other method now in use. This has been proved by Dr. George E. Fell, of Buffalo, N.Y., and others, during the past ten years. (New York Medical Journal, April 20, 1895, p. 483.)

ENEMATA OF WHITE OF EGGS.

Dr. J. Ashburton Cutter remarks that albumen of eggs is valuable to feed patients when other forms of nourishment can not be taken or to reinforce other nourishment. I have known patients to take the whites of 18 eggs in one day with evident advantage, in some cases the result appearing almost life-saving. Exhibition by the mouth is made in three ways: (1) raw; (2) raw, with milk; (3) dropped in boiling water and slightly cooked. Enemata of uncooked whites I have lately used with decided benefit. Administration by a Davidson hard rubber syringe No. 494, one ounce. Eggs vary in size and weight, and should be sold by weight; the albumen of an egg varies in bulk from one-half to one ounce as eggs run. Drugs can be administered with the raw albumen; sometimes a little laudanum is needed, but rarely, to quiet bowel. Patients state that an enema relieves the faint gone feeling in stomach, and such relief is longer than when the whites are administered by the stomach. (July 27, 1895, p. 147.)

ENTERIC FEVER.—Treatment of, by Mercury and Iron.

Dr. Ewart, F.R.C.P., has tried Wedgwood's treatment (liq. ferri perchlor. ℥ 20, and liq. hydrarg. perchlor. ℥ 30, 4ths horis), and draws the following conclusions :—My present experience of the method causes me to regard it as the best treatment for the generality of cases ; its general tonic effect on the nervous system, its beneficial results on the blood, the liver, and the mucous membrane, and the control it exercises over the diarrhœa are beyond doubt. I believe that the last-named advantage is partly brought about by local antisepsis, although this is difficult to prove, and partly by the astringent properties of the iron. In the second place its administration has served as a test for the severity of the cases, and as regards also the extent of the lesions. I have learnt to base a most anxious prognosis on intolerance of the remedy, whilst all cases, including some with well-marked "typhoid" aspect (delirium, sordes, &c.), in which it was tolerated, recovered, the symptoms yielding in an unmistakably direct way to the treatment. It may be that when begun after the second week (and in none of the fatal cases did the opportunity for treatment arise quite so early) the medicine may come too late, and may act as an irritant to an intestine already ulcerated or severely inflamed ; this would be an argument for its early administration in every case. I do not give up hope that the same kind of treatment, with some simple modification in its form, may be found suitable to cases apparently intolerant of it, such as those referred to, in which it was perhaps too readily given up, and in which it cannot be said to have had a fair trial. The object of this paper has been to give my testimony in favour of a treatment which in a majority of cases has been productive of so much good, and which seems to have transformed some of them, which might otherwise have turned out badly, into relatively mild cases (Medical Press and Circular, May 15, 1895, p. 505.)

FUNCTIONAL PARALYSIS, TWO CASES OF.—Treatment by Myelin, &c., with Recovery.

In the first of these cases the improvement was so great and so speedy on both occasions after the use of the myelin, that it was difficult to avoid coming to the conclusion that the change for the better was due to this agent. Care was taken to avoid explaining its nature to the patient, though I have little doubt he would soon come to know what it was. It is certainly open to question if the *idea* of a new, and what might appear to him mysterious agent, had not much to do with the etiology of the improvement. Still the impression remains on my mind that some constituent of the myelin had probably

stimulated his brain-cells, and that the partial recovery might correctly be attributed to it. I have now administered this medicine in a considerable number of cases, both of organic and functional diseases of the central nervous system. Where there was organic mischief I have not seen clear evidence of benefit from its use. In functional disorders, particularly the less severe forms, it has occasionally been of distinct service. I am disposed to regard it as a special but mild stimulant, more particularly in states of depression of the brain and nervous system generally. Perhaps even more decided and striking was the completion of the patient's recovery under hypnotism. The idea suggested to his mind, while in this state, of complete restoration to health seemed to exert a powerful stimulating action on the brain. Such cases are fair and legitimate fields for the use of this remarkable agent. The mere fact that it has been so long in the hands of charlatans, and indeed is largely in their hands still, should not deter us from availing ourselves of its powers when there is reasonable ground for expecting that it may favourably influence the progress of disease, whether of mind or body. In the second case, the most remarkable feature was the rapid recovery from the all but complete abolition of sensory function, and the less complete but still very marked impairment of motor power. There was absence of ordinary hysterical symptoms, but there can be no doubt that the condition of the patient was closely allied to, if not identical with, what exists in cases of that kind. But to name it hysterical is to use a mere cloak for our ignorance of its nature. I prefer to call it functional, for it conveys the impression that it is the office or sphere of action of the organ involved which is disordered or in abeyance for the time. It also suggests, what is desirable to bring out in relief, that no important structural change exists, but only some molecular disturbance, inappreciable to our means and powers of investigation. It has only further to be remarked that it is in such cases that electricity reaps its most brilliant successes. The disappearance of symptoms of such apparent gravity within twenty-four hours after the application of the Faradic current was very striking. (From Dr. Alex. Robertson's Paper in the Glasgow Medical Journal, October, 1895, p. 258.)

GROWING PAINS.

The following is taken from the Medical Record, July 9, 1895, p. 16 :—Growing pains, defined as pains in the limbs caused by and during rapid growth, and sometimes so severe as to give rise to growing fever, have been diagnosed by the author less and less frequently as the years rolled by, until the vanishing point was reached. Cases which have been classed together

under this name are the following :—*Myalgia from Fatigue.*—This is the commonest variety, usually about the knees and ankles after unusual exertion. They are probably due to autoinfection brought about by excessive production of *effete* materials in the blood and their inefficient elimination. Elevating the limbs and rubbing with the palm of the hand in a direction toward the heart, relieving venous stasis and facilitating a supply of healthy blood to the exhausted muscles, promptly relieves the pain. *Rheumatism.*—This is second, if not first, in frequency. There is slight pain in the joints, little or no swelling, and very mild fever, and hence the true cause is not recognised ; but rheumatic endocarditis frequently develops in these cases. *Diseases of Joints and Bones of the Lower Extremities.*—Cases of hip-joint disease and suppurative epiphysitis of the upper end of the fibula, diagnosed by the laity and allowed to go on untreated, are related under this heading. *Fevers*, accompanied by pains in the limbs, in one instance proving to be inception of typhoid fever, constitute this class. *Adenitis.*—Here, again, the mother still supposes that the lad of sixteen years suffered from "growing pains," but he was treated for gonorrhœa and a sympathetic bubo. The malady "growing pains," with its frequent concomitant growing fever, like its congener disorders of dentition, as a separate morbid entity exists principally as an article of faith. The complaint still maintains, however, a strong hold on the lay mind, and forms an extremely common lay diagnosis which is often the cause of much suffering, and even death, by leading to the neglect of curative measures at a time when they are most effective.—*Archives of Pediatrics.*

GUAIACOL.—Its therapeutic uses.

In the *Presse Médicale*, April 20, 1895, there is an article on this subject. As regards the external use the writer says that painting has become a common practice, and it is as important as the hypodermic injections or its administration by the mouth. It has been used pure or with equal parts of sterilized olive oil or glycerine. For the first painting thirty grains of this oil solution should not be exceeded, as stronger doses have occasionally provoked symptoms of agitation and collapse. The solution should be applied over a rather large surface, about 0·20 centimetre square. The preferred regions may be the forearm or the calf of the leg. Guaiacol has also been employed in combination with tincture of iodine and vaseline. Painting with this drug has been used in the following affections :—(1) Tuberculosis. In this disease the paintings seem to have a powerful antipyretic action. In miliary tuberculosis and in the acute attacks that occur during the course of chronic tuberculosis, according to Bard, Courmont, and Boix, guaiacol gives the most remarkable

results. Boix reported several cases where not only small doses resulted in rapid and intense effects on the fever and on the general condition, but the effects were apparently lasting and definitive. In several cases there were bacilli in the sputum. The drug should not be used in the treatment of very feeble persons in the last stage ; moreover, it has no action on the hectic fever of this period. (2) Typhoid fever. Montagnon employed in this disease paintings with guaiacol over the inguinal region when the temperature was high, and he was able to combat the hyperthermia in twenty patients. Eight grains were used at a time, and not more than 30 grains during the day. With repeated paintings Moisy was able to maintain an almost normal temperature, and he noticed that the antithermic action of the drug seemed to increase. Chéron, however, pointed out the dangers that might follow a too prolonged use of the drug, owing to the insufficient renal elimination of guaiacol. Montagnon recommends the use of guaiacol especially in cases where the cold bath is contraindicated. Desplats also obtained very good results in typhoid fever with guaiacol. (3) Pleurisy. In this affection Miron Sigaléa painted the entire affected side twice a day with the following mixture : Guaiacol, 45 grains ; glycerine and tincture of iodine, each 300 grains. He has also seen this treatment succeed in recurring effusions after a first thoracentesis. In these cases the guaiacol appeared to have a diuretic effect, which was also observed in a case of scarlatinous nephritis with anasarca and anuria. Desplats also found this diuretic action in typhoid fever and in typhus. (4) Infectious pyæmia. In influenza, pneumonia, rheumatism, etc., painting with guaiacol has an ordinary antipyretic action. In intermittent fever Kohos moderated the attacks in the beginning by injecting a mixture of guaiacol and lanolin over the spleen. In erysipelas of the face the paintings, according to Bard, may diminish the intensity and gravity of the affection. In all affections where the renal elimination may be insufficient the administration of guaiacol should be cautiously made and its action carefully watched. (5) Pultaceous angina and amygdalitis. According to Darboue, Raymond, Rhodes, and others, pharyngeal paintings give very good results in combating not only the fever but the pain. The glycerine solution is preferable to the oily solution, and for an adult the two ingredients are prescribed in equal parts. For children, however, the dose should be weaker, one part of guaiacol and three of glycerine, and its action closely watched. The first burning is sharp and the taste rather disagreeable, but the relief is rapid. The difficulties of deglutition are very much diminished. (6) Neuralgia. Painting with guaiacol seemed to give good results in sciatica, in intercostal neuralgia, and in coxalgia. Balzer employed

the following ointment in blennorrhagic orchitis :—Guaiacol, 75 grains ; vaseline, 450 grains. In the very painful forms he applied the first painting over the abdomino-inguinal region with from 30 to 45 grains of pure guaiacol, and after the first sharp burning relief generally occurred at the end of about half an hour. These, says the writer, are the affections in which guaiacol has been employed. The dominating action of the drug is antithermic. This has been observed especially in cases of tuberculosis, although this action of the drug is successful in other pyrexiæ. The analgetic action of guaiacol must not be overlooked, for it has rendered great service in certain painful affections in the treatment of which we have often been powerless to combat the element of pain with other drugs. (New York Medical Journal, June 8, 1895, p. 735.)

HÆMOGALLOL.

Prof. W. H. Porter, in a lecture on chronic parenchymatous metamorphosis of the kidneys (see page 278 of *Retrospect*) thus speaks under treatment of this agent. Hæmogallol is a new iron preparation somewhat recently produced by Prof. Kobert, of Dorpat University. It is made from hæmoglobin by deoxidising this animal substance by the use of pyrogallic acid. The iron in this preparation is in its natural organic combination with carbon, hydrogen, nitrogen, and sulphur. This preparation is absolutely non-irritating to the stomach, and can be taken by all, and especially by those who cannot tolerate any preparation of iron which is made by the use of the inorganic forms of this metal. In this form the iron unites with the unsatisfied sulphates and tannates in the alimentary tract as rapidly as the inorganic preparations of iron. The surplus of the iron compound is quickly absorbed by the entero-hepatic circulation, while the inorganic salts are not capable of being absorbed. For the last eighteen months these preparations have been extensively used both at my clinic and in my private practice in all cases in which iron was indicated. So far the results obtained have far surpassed any that followed upon the administration of any other form of iron. Over ten pounds have been used during the past year. This preparation has been found especially valuable in the anæmic state of the system which is part of these suboxidation diseases. This is especially true in all classed under the general name Bright's disease. (International Clinics, Third Series, vol. 2, p. 72.)

HODGKIN'S DISEASE.—Two Cases rapidly cured by Arsenic.

The first case calls for no comments. On admission, the patient looked very ill, and though his appearance was very

characteristic, yet the extensive ulceration of the enlarged tonsil made one think of malignant disease, probably of sarcomatous nature. The very rapid and complete improvement under arsenic was very remarkable. The second case calls for some remarks. Was the case one of Hodgkin's disease, and if so, was it acute Hodgkin's disease? Though the patient had been anæmic and weakly for some time, yet the symptoms, for which she was admitted, appeared to have come on acutely. The excessively enlarged spleen, the enlarged glands, and the peculiar temperature curve were all indicative of Hodgkin's disease, yet one had to differentiate between this affection and some other febrile disease, such as typhoid, ulcerative endocarditis, and malaria. The absence of tympanitis, headache, roseola, diarrhœa, deafness, and the peculiar temperature curve contra-indicated typhoid; the early disappearance of the systolic bruit, the glandular enlargement in the neck, and the rapid recovery were against ulcerative endocarditis, and the absence of rigours and the temperature curve against malaria. If the case were one of Hodgkin's disease, then, most likely, we had here to do with the acute form, for though the patient had been in a weak state for a long time, yet it is scarcely likely that she could have been able to go on with her work, if the process had existed for some time; moreover, the swelling of the glands in the neck appeared only shortly before admission, and the onset of the disease appeared to have been acute.

(From Dr. Dreschfeld's paper in the Medical Chronicle, October, 1895, p. 36.)

HYDROXYLAMINE HYDROCHLORATE.

In the *St. Bartholomew's Hospital Reports*, 1894, p. 189, Dr. Lauder Brunton, F.R.S., contributes a note on the use of this agent as a substitute for nitrite of amyl or nitroglycerine. He draws the following conclusions:—(1) The physiological action of nitrites, of nitroglycerine, and hydroxylamine is alike, as I have already shown, and they all have the power of greatly lowering the blood pressure by dilating the peripheral vessels; (2) that hydroxylamine, as was to be expected from its physiological action, has a similar power of relieving pain in angina pectoris to nitrites and nitroglycerine; (3) it may be employed in disease as a substitute for them; (4) its action appears to last longer than that of nitroglycerine, and *a fortiori* longer than that of the nitrites of amyl, propyl, or butyl; (5) in some cases it may have a local irritant action on the gastro-intestinal tract, to avoid this it should be diluted. The dose given in a case reported in this paper was 1 gr. dissolved in an ounce of water.

INFLUENZA.—Treatment of.

After describing a case in which there had been four distinct attacks of influenza in the same individual, Surgeon-General Francis makes the following remarks on treatment:—The treatment consisted of a diet suited to the gastric disorder and the digestive capacity—for the most part milk, Benger's food, corn flour, and the like, with subsequently, beef-tea, mutton broth, &c. Of medicines, a carbolic acid mixture with a subsequent nerve tonic were the chief. But the most valuable factors in promoting recovery and preventing after complications were good hygienic surroundings and avoidance of all risks by not leaving the bedroom too soon. Confinement to this was felt to be necessary for more than two months. Alcohol being recognised as a nerve paralyser—not the stimulant as popularly regarded—was withheld. A tablespoonful of champagne seemed to set the stomach on fire and increase the gastric trouble. After all, assuming that Pfeiffer's bacillus is the cause of grippe, the most important question is—what will destroy it? One in 20,000 of quinine, says Binz, will destroy the bacillus of malaria—this being in his opinion the *rationale* of the cure with the drug. But quinine, though highly recommended, has not found universal favour in the treatment of influenza. It may be that, as in malarial fevers so in this disease, larger doses than those ordinarily given are required. It would be well, I think, judging from my own experience, to give quinine at the commencement of an attack, after clearing the intestinal canal, and not less than from 10 to 15 grains a day for the first day or two—then to be discontinued if there is no amendment of the symptoms. If the patient be intolerant of quinine, minimum doses of bichloride of mercury might be given instead for a couple of days with due precautions. (Medical Press and Circular, June 12, 1895, p. 618.)

INFLUENZA.—Scarlatiniform Rash in.

Mr. Dibble Stable has lately had three cases of influenza with a scarlatiniform rash. The rash appeared very early, viz., the patients had the symptoms of nasal catarrh and the next day the rash appeared all over the body; this rash was rose coloured and resembled that of scarlatina. The throat was sore and the glands of the neck enlarged; one patient complained of a troublesome itching of the skin; in other cases it caused no inconvenience whatever. The relations of the patients thought that they were suffering from scarlet fever. The rash began to fade a few hours after it had made its appearance, and no desquamation occurred. In none of these cases were the symptoms of influenza severe, and all the patients were convalescent within ten days. No complications followed, except

a little effusion of the wrist joint in one patient, which soon disappeared under treatment; the patient had suffered from rheumatism previously. The diagnosis of the rash from that of scarlet fever in my cases was comparatively easy, as each patient was over 18 years old, and had all had scarlet fever previously. In younger cases, especially if they had not had the fever previously, it would have been far more difficult; but in those cases I should rely upon the following symptoms, the majority of which are so typical of scarlet fever:—The high fever, and initial vomiting or rigor, although these are often found in influenza; rash appears on second day, and begins on neck, and is brightest on covered parts. The tongue red, with prominent papillæ ("strawberry tongue"). The soreness of the throat more marked, with diffused redness of the fauces and soft palate. The desquamation is free. (Medical Times and Gazette, April 20, 1895.)

INSANITY.—Thyroid Treatment of.

The case which Dr. Clouston showed to the Edinburgh Medico-Chirurgical Society opens a wide field for research. An unmarried girl who had had one attack of acute puerperal mania, which had proved amenable to treatment, not taking warning by what had happened, was attacked a second time. On this occasion, however, the mania subsided into stupor, and the stupor into what was looked on as an early stage of dementia, and the patient was regarded as practically incurable. Thyroid treatment was determined on as a last chance, and heroic doses of 60 grs. per diem for eight days given until a thyroid fever was set up. On the subsidence of the fever a marked change for the better was observed in the patient, and six weeks after the commencement of the treatment she was apparently cured. (Medical Press and Circular, May 22, 1895, p. 553.)

ISOLATION OF DIPHTHERIA PATIENTS.

In a leading article on this subject (*Medical Press and Circular*, May 29, 1895, p. 577), the following remarks are made:—The question of how long diphtheria patients should be isolated is really a most important one, especially when we recollect that one of the most fertile causes of the dissemination of the disease is the continued persistence of the Klebs-Löffler bacillus in the mouth and nasal fossæ after the patients have become quite convalescent. Measures of precaution against the disease do not consist merely in isolating a diphtheritic child during its illness and of disinfecting all the places and objects which have been

contaminated by its presence, but it is absolutely essential to continue the isolation as long as the child continues to be infective, that is to say, as long as the characteristic bacilli can be detected in the secretion of the buccal and nasal cavities. But do we possess any data by which the duration of the infectivity of the disease after recovery has resulted can be approximately determined? In reply, it must be conceded that we have no data upon which to arrive at a definite conclusion on this point. Despite the fact that researches for several years have been undertaken with a view of ascertaining the duration of the vitality of the Klebs-Löffler bacillus, nothing more has been demonstrated than that the bacillus displays a very variable degree of vitality. As a matter of fact, no hard and fast rule can be laid down for the guidance of practitioners in this regard. Sevestre and Mery, who recently inquired into the subject, referred to cases where virulent inoculable bacilli were discovered forty days after the removal of a tracheotomy tube. Other observers have recorded cases in which the infection persisted for still longer periods. Belfanti, for example, in a recent number of the *Reforma Medica*, gave the notes of a case in which, after an interval of seven months, a diphtheritic patient was still infective. The only means, of course, of determining whether a patient is or is not infective after convalescence from diphtheria is by a bacteriological examination of the secretions of the mouth and nasal fossæ. This examination should obviously be practised in all cases of diphtheria before the patients are permitted to associate with healthy persons. The importance of this precaution cannot be too highly magnified. We are powerless by any other method to determine whether the infection does or does not persist, and, as inquiry has shown, most virulent bacilli may still remain in the mouths and nasal fossæ of patients in whom convalescence from diphtheria has been long established. Sevestre insists that even if the bacteriological examination yields at first negative results the inference should not be drawn that no infection exists. But further examinations should be made after some days' interval, and in the meantime the throat and nasal passages of the patients should be frequently irrigated. At length, when no bacilli can be detected in the buccal or nasal secretions after several bacteriological examinations, the patient may then be regarded as practically free from infection. Probably, however, it might be urged that the routine examination for the Klebs-Löffler bacillus would by no means be always possible, owing to the difficulty of securing the services of a bacteriologist. But we cannot think that this operation should be allowed to weigh against the fulfilment of a most necessary detail in the treatment of cases of diphtheria.

LARYNGEAL DISEASES.—Iodide of Potassium in. At the end of a paper on the importance of administering iodide of potassium in laryngeal diseases of doubtful diagnosis. Dr. Clarence C. Rice says that we might continue to cite cases of most varied pathological appearances—ulcerations which seemed to be tubercular, small growths which were apparently benign, large swellings with every appearance of malignancy—which were afterward proven to be specific, or which disappeared, at least, through the effect of iodide or potash. This drug and the microscope cannot be ignored in searching for a truthful diagnosis. (Medical Record, July 6, 1895, p. 4.)

MALARIAL FEVER.

The following general conclusions are from an elaborate article by Drs. Thayer and Hewetson on the Malarial Fevers of Baltimore (*Johns Hopkins Hospital Report*, 1895, p. 186):—Malarial fever is rare in Baltimore during the winter months, but becomes more frequent as the season advances, reaching a maximum in the month of September, the majority of all the cases occurring in August, September, and October. Any differences between the susceptibility of individuals of different ages, and of the two sexes, depend, apparently, only upon the varying chances of exposure to infection. The relative susceptibility of the negro is, by nearly two-thirds, less than that of the white population. We have distinguished three varieties of the malarial parasite:—(1) The tertian parasite; (2) the quartan parasite; (3) the æstivo-autumnal parasite. (1) The tertian parasite requires about forty-eight hours to accomplish its complete development, and is associated with relatively regular tertian paroxysms, lasting, on an average, between ten and twelve hours, associated, almost always, with the three classical stages—chill, fever, and sweating. Frequently, infection with two groups of tertian organisms gives rise to quotidian paroxysms; rarely, infection by multiple groups of organisms gives rise to more irregular, sub-continuous fevers. (2) The quartan parasite is an organism requiring about seventy-two hours for its complete development. It is rare in this climate, and is associated with a fever showing regular quartan paroxysms, similar, in nature, to those associated with the tertian organism. Infection by two groups of the parasite causes a double quartan fever (paroxysms on two days, intermission on the third). Infection, with three groups of the parasite, is associated with daily paroxysms. (3) The æstivo-autumnal parasite passes through a cycle of development, the exact length of which has not, as yet, been determined; it probably varies greatly from twenty-four hours, or under, to forty-eight hours or more. But few stages of development of

the parasite are found, ordinarily, in the peripheral circulation, the main seat of infection being, apparently, in the spleen, bone-marrow, and other internal organs. Infection with this organism is associated with fevers varying greatly in their manifestations. There may be quotidian or tertian intermittent fever, or, more commonly, more or less continuous fever with irregular remissions. The individual paroxysms last, on an average, about twenty hours. The irregularities in temperature depend, probably, upon variations in the length of the cycle of development of the parasite, or upon infection with multiple groups of organisms. We have not been able to separate two distinct varieties of the æstivo-autumnal parasite, though we feel that more investigation is needed upon the subject. The cases of malaria in the spring and early summer are of the milder, more regularly intermittent varieties (tertian and quartan fever), the severe æstivo-autumnal infections beginning to appear only in the later summer, and reaching their maximum in September. The coloured race, while showing a relative insusceptibility to malarial affection, is equally susceptible to the various forms. The infections which occur are, however, more apt to take a simpler, milder course—the single tertian cases, for instance, outnumbering the cases of double tertian fever. The majority of all the cases of malarial infection in this climate depend upon the tertian parasite ; these tertian infections form the vast majority of all the cases in the first half-year, but occur throughout the malarial season. The majority of infections during the height of the malarial season depend, however, upon the æstivo-autumnal parasite. The earliest cases of tertian infection are more commonly single in nature, while as the season advances double tertian infections become more common. Nothing in our experience has led us to believe that these varieties of the parasite are interchangeable. They are, we believe, distinct varieties, though closely allied to one another biologically. Combined infections, with parasites of different varieties, may occur, but they are rare—forming less than 2 per cent. of all the cases which we have observed. The crescentic bodies, associated with the æstivo-autumnal parasite, develop from the small hyaline forms. We have seen nothing to support the views of Mannaberg that they are the result of conjugation. We have never seen sporulating forms which we believe to have developed from crescents. We are not, as yet, inclined to accept the view that these are degenerate forms ; we believe that their true nature is still undetermined. The nature of the flagellate bodies which may develop in all types of malarial fever, is not yet determined. The specific action of quinine upon these three varieties of the parasite is undoubted. It exerts its influence most strongly when the

parasite is undergoing the process of segmentation, before the entrance of the fresh segments into the new red corpuscles. It is best administered, then, just before the beginning of a paroxysm if we wish to obtain the greatest effect with a single dose. The action is much more rapid and certain in the tertian and quartan fevers than in the æstivo-autumnal infections.

NAPHTHALIN AND OXYURIS.

Naphthalin, though a powerful poison, has been conceived as a useful remedy for the destruction of the oxyuris in the alimentary canal. In this advocacy Aurel Schmitz now brings forward several cases successfully treated by the drug. Naphthalin is insoluble in water, and on this account presumably passes along the bowel without being absorbed; but how it travels without being in some way modified till it reaches the worm at the lower end of the gut, and then acts violently on the parasite, is yet a puzzle. The powder is mixed with sugar, or in elder children administered in capsule. It must be given in the interval between meals, while the food should contain as little fat as possible—the fat acts as a solvent and produces its toxic effects. Eight powders were given in eight days, then a pause of eight days; again followed eight powders, then another pause of fourteen days succeeded, and so on till the desired effect is produced. As a rule the first eight are successful. The dose ranges from 0·15 to 0·4=2·3 to 7·1 grains for a child 1½ years old to 13 years of age, 7 grains being given in the latter case. A laxative may be necessary to relieve the constipation. Of 46 cases thus treated 26 were relieved at once; the other 20 gradually improved. Children bear the drug well, although in obstinate cases it is better to make long pauses. It is less injurious to the bowel than santonine. (Medical Press and Circular, July 10, 1895, p. 38.)

OPIUM HABIT, THE.

In a paper on the Opium Habit: its causes and effects as illustrated from experience in Hyderabad, Dr. Patrick Hehir (*Calcutta Medical Reporter*, July 16, 1895) makes the following remarks:—The subject of the sudden withdrawal of opium from opium-eating prisoners entering Indian jails is one of very grave significance, and one upon which very great difference of opinion is held by the most experienced officers on jail administration. Many recommend this plan, whilst many advocate the gradual withdrawal, believing that the latter process is less cruel, and less liable to endanger the life of the prisoner. I have for years held the view that will, I know, be resented by many—that the latter is the most scientific method; the human system has to gradually accustom itself to the opium,

it is reasonable to expect that it will better tolerate a slow reduction than an abrupt removal. If the patient was only accustomed to a few grains a day for a brief period, he suffers but little on the abrupt removal of the opium. If a large quantity has been taken, he lapses into a state very much resembling what we find in the drunkard whose grog is suddenly cut off—a condition of opium delirium tremens; but in addition to this he first complains of general malaise and "boneachishness," with diarrhœa, and perhaps vomiting, loss of appetite, and incapacity to digest food. The effects of the sudden withdrawal of the drug vary widely amongst opium-eaters, but the chief factors determining the after effects are—the quantity that has been habitually consumed, the length of time the habit has been continued, the nervous constitution and idiosyncracy of the patient, and the condition of health and nutrition. As a rule, if the habit has been well established, he suffers the most terrible mental distress and physical agony. In some cases the patient actually lapses into a state of melancholia or mental derangement, which, however, is very amenable to treatment, and as a rule does not last longer than a fortnight.

PALUDISM.—Prophylaxis of.

Noel (*Le Bulletin Med.* No. 29, 1895), after passing in review the successes and failures of quinine and certain of its salts in the prophylactic treatment of malaria, reaches the following conclusions: 1, the prophylaxis of paludism by quinine is a demonstrated fact; 2, there are no inconveniences attending the treatment in health, and quinine loses none of its efficacious properties in cases of intermittents; 3, the hydrochlorate of quinine is the best salt to use; 4, the drug should be taken each morning after arrival in the dangerous zone and during its passage; 5, the minimum daily dose is 0·30 grams. For troops on the march the pill form is preferable, but for those in camp it is better to use the medicament form an ingredient of a tonic. Notwithstanding the efficacy of quinine, in the light of recent knowledge that malaria is waterborne, the true prophylactic is pure water. (The Journal of the American Medical Association, June 29, 1895, p. 1022.)

PAROTITIS AS A COMPLICATION OF INFLUENZA AND PNEUMONIA IN TWO CASES.

One of the rarer complications of pneumonia is parotitis. Jürgensen, in *v. Ziemssen's Cyclopædia*, quotes statistics showing the small percentage of cases in which it occurs (about one-tenth per cent.). In two cases, which it is desired now to put

on record, the parotitis followed closely upon an attack of acute pneumonia, typical in regard to sputa, physical signs, duration of pyrexia, and other phenomena. This attack of pneumonia, however, seemed in each case to develop as a complication of influenza. On reference to Althaus's monograph, I find quotations, from two authorities, of cases of inflammation of the parotid as a sequela of influenza. Zülzer, in *v. Ziemssen's Cyclopædia*, says that (in influenza) "parotitis with salivation is sometimes observed." It is thus quite natural to suppose that not only the pneumonia, but also the parotitis, in the present cases, may be regarded as a complication or sequelæ of the influenzal attack, just as both might occur as complications or sequelæ of enteric fever. In the second case it will be noted that there was the further complication of a severe intestinal catarrh. That is not unknown in pneumonia, but it is at least as common in influenza without chest complication. Both patients were beyond middle life; Jürgensen says that Grisolle speaks of the patients (in pneumonia) most apt to be attacked by parotitis as those "beyond sixty years of age," while one of Althaus's references is to report in the *British Medical Journal* (July 11, 1891) of parotitis after influenza "in three old women." As regards the parotitis, it is interesting to note that in both cases there was subsidence without suppuration, suggesting that the prognosis, in such circumstances, need not necessarily be so unfavourable as might be gathered from the statements of the authorities quoted above. The extent to which suppuration and sloughing may take place in parotitis was illustrated in a case of enteric fever under my care in Belvidere Hospital in 1889. (From Dr. Carslaw's paper in the Glasgow Medical Journal, July, 1895, p. 24.)

PYREXIA IN CHILDREN.—Treatment of.

Dr. Jennings (*Archives of Pedriatics*, March, 1895) does not regard a moderate fever as a dangerous symptom in acute diseases of childhood, but considers that the physical distress caused by pyrexia calls for relief at the hands of the physician. The remedies constantly in use for this purpose are—aconite, the graduated bath, and the synthetic antipyretics (the coal-tar group—antipyrin, phenacetin, &c.) Aconite, because of its depressing effects on the heart and circulation, is indicated in the early stage of all acute diseases, attended with local engorgements, *e.g.*, tonsillitis, bronchitis, pneumonia, &c. If rapid reduction of temperature is desired, the aconite should be assisted by one or two doses of phenacetin. A child of three may be given a quarter of a drop of tincture of aconite every fifteen minutes for the first hour, then at hourly intervals for ten or twelve hours. Of the coal-tar antipyretics, phenacetin is the

best, not quite so rapid in action as antipyrin, but less depressing to the heart. Begin with a dose of half a grain of phenacetin for each year of the child's life, give two or three doses at hourly intervals, and watch the effect. It is not necessary to reduce the temperature below 100°. From their anodyne and analgetic effect, phenacetin and antipyrin are of great value in the pyrexia of meningitis. Phenacetin is of value to reduce high temperature in acute indigestion of children, but should not be used in cholera infantum or acute intestinal catarrh. In these conditions, attended as they are by vaso-motor paresis and profound irritability, the graduated bath is the best remedy ; as besides being antipyretic, it is a powerful cardiac, respiratory, and vaso-motor stimulant ; hence its great utility in typhoid. Children do not bear cold baths well, and it is seldom that a bath below 80° is necessary. It is best to begin at 95°, and cool it down to 85°, keeping the child in it for five or ten minutes. This is particularly recommended in broncho-pneumonia, suppressed scarlet fever, typhoid fever, and cholera infantum. —*Archives of Pediatrics*, March 1895, p. 174. (Dr. Alan Mackay in the Intercolonial Quarterly Journal of Medicine and Surgery, May, 1895.)

QUININE IN MALARIA.

Before the fifteenth meeting of the Medical Association of India, Dr. P. N. Mukerji (*Medical Reporter*, Calcutta, May 1, 1895, p. 347) read a paper on the use of quinine in fevers of malarial origin. He makes the following remarks on the best time to administer quinine :—The best time for the administration of quinine in these cases, in my opinion, is the morning, usually after a suitable dose of purgative. Because morning is the time when remission generally takes place ; and taking advantage of this circumstance quinine should be given at once without taking notice of the temperature. In these fevers temperature rises very high in the evening, but in the morning usually there is a little reduction. The circumstance should not be overlooked. The best way of giving quinine is, I believe, to give it in divided doses, *i.e.*, three, four, or five grains at a time. The first dose is to be given, say, at 6 a.m., at 7 a.m. take the temperature again and see whether it is more reduced than what it was when the first dose of quinine was administered. If so, give the second dose at once at 7 a.m., *i.e.*, after an hour and watch over. Then at 8 a.m., if you find that the temperature is further reduced, give the third dose at once, and so on until it is reduced to the normal point.

RHEUMATOID ARTHRITIS.—Causation of.

In the first place the causation is evidently complex, for innumerable and diverse facts testify to an inherited local

vulnerability both of the nervous centres and of the joints, and this should be placed first among the causes; next come particular conditions of disturbance incidental to different periods of life; then there is the depressing effect of antecedent illness; and, lastly, the external causes (cold, damp, and injury), which, as we know, first, and chiefly affect the feet and hands, in which, as a rule, arthritis begins. To my mind there is strong evidence that some implication of the nervous system takes an essential contributory part. We have gone beyond the anatomical lesion, and a disorder is found manifesting not only a general progressive affection of the joints, but other characters, to which I have referred, pointing to changes in the nervous centres. It is also found that the disorder is most frequent and most acute at the period of greatest nervous instability—namely, in young womanhood and at the climacteric epoch. In the latter case it is less severe, sometimes confined to one-half of the body and subject to intermissions analogous to the fluctuating condition of the nervous centres at that epoch. One disease of the nervous centres is known in which organs of locomotion are affected, first by a brief inflammatory condition and then by degeneration and atrophic changes; this condition in infantile paralysis is confined to the muscles. Then, again, in another spinal cord affection, tabes dorsalis, we have occasionally affection of isolated joints with arthritis, in which the inflammatory stage may perhaps be veiled by anæsthesia of the parts. In the present case there is a disease of the organs of locomotion in which the inflammatory period stretches over years, a disease which is frequently associated with emotional or mental disturbance, and which is commonest in women during the years when such disturbance is most common; and in this disease, according to my belief, whatever may have been its genesis in ancestral maladies—gout, rheumatism, tubercle—yet, in the individual, nervous disturbance remains the preponderating element of causation, and determines in rheumatoid arthritis a condition of neurosis almost akin to insanity, but of which the principal manifestation is found in the joints. (From Dr. R. Fortescue's paper in The Lancet, July 13, 1895, p. 83.)

SALOPHEN.

Dr. B. H. Waters gives a report on the use of salophen, based on its use in 25 cases of acute rheumatism. His conclusions are:—(1) That in almost every case improvement has been rapidly effected, and the average length of time for reduction of fever has been six days, as against eight days for the ol. gaultheriæ and nine days for sodium salicylate. (2) That no complication more serious than the extension of the process to other joints was observed. (3) That the average length of hospital treat-

ment has been: under salophen, 18 days; for ol. gaultheriæ and sodium salicylates, each 25 days approximately. It should be noted that this in every case includes after-treatment with iron and tonics. (4) That in no cases have gastric, renal, or constitutional disturbances been observed, while all have been developed under the other drugs. When the disparity in the number of cases reported is remembered, this seems a clear point in favour of the new remedy, 13 cases of salophen having been collected, as against seven of salicylate and five of gaultheriæ. Finally, as it is exceedingly easy of administration, and is not at all unpleasant to the taste, it answers the last condition demanded. It seems fair, however, to assume that in salophen we have an agreeable, efficient, and safe antirheumatic, thus acknowledging for it three important qualitis which can not always be counted upon in other forms of salicylic acid. (New York Medical Journal, May 25, 1895, p. 659.)

SERUM TREATMENT OF DISEASE.

Diphtheria.

Giarre (*Lo Sperimentale*, April 21, 1895) gives details of a second series of cases, 29 in number, treated with the serum. The youngest patient was 14 months, the eldest 11 years old. In 16 the lesion was situated in the pharynx, and in 13 it spread to the larynx. Löeffler's bacillus was found alone in nine cases, and associated with other micro-organisms in 20. Sixteen cases were treated with Behring's serum, and 13 with an Italian serum which was not less efficient. There were no other ill-effects than a skin eruption in five cases. Local treatment with Löeffler's solution was adopted as often as possible. Of 16 cases of diphtheritic angina, 14 recovered and two died (mortality 12·50 per cent.). Symptoms of other intoxication were present in both fatal cases on admission. Enormous swelling of the glands was noted, a sign to which the author would attribute an unfavourable prognostic significance. In four cases the symptoms of croup rapidly disappeared. In three there was transitory albuminuria, and in one a passing arhythmia, but in no case was there paralysis. In the youngest child the disease was most severe, and the author attributes the recovery to the treatment. In the cases of diphtheric croup, eight out of 13 died (a mortality of 61·53 per cent.). The patients were admitted from the third to the twelfth day of the disease. In all eight fatal cases, albuminuria was present before the injection; five died within 24 hours of admission, and two within 48 hours after the injection. In seven there were evidences after death of advanced intoxication. The author would not attribute the want of success to the inefficiency of the serum,

but to its being used too late. He draws special attention to the importance of early treatment. Perhaps the serum recently sent out is hardly as powerful as formerly. Six died of nine injected with the serum obtained from Höchst. The character of the epidemic must also be considered.—Dastros (*Med. Mod.*, April 20, 1895) reports the results in 96 children treated with the serum. Thirty-four were cases of pharyngeal diphtheria; eight deaths=mortality of 23·5 per cent.; 38 were cases of croup, with or without angina; 13 deaths=a mortality of 34 per cent. Among these latter cases eight recovered without operation; in the remaining 30 intubation was found necessary; and all the fatal cases were in this category. The serum was used in 26 non-diphtheritic cases of croup and angina, with only one death. (British Medical Journal Epitome, June 22, 1895, p. 99.)

Van Nes (*Deut. med. Woch.*, June 6, 1895) has treated 52 cases with the serum, of which 40 or 77 per cent. recovered. Of the tracheotomised 64 per cent., and of the non-tracheotomised 87 per cent. recovered. The author then analyses three groups of 52 consecutive cases previous to the serum treatment. In the 156 cases the total recoveries amounted to 57 per cent. In the most favourable group they were 64 per cent., and in the least favourable 52 per cent. Among the 52 cases treated with the serum, 16 slight cases, 21 out of 23 cases of medium severity, and only three out of 13 severe cases recovered. In two cases an eruption occurred. The general condition of the patients improved considerably after the injection. In four cases there was slight diphtheritic paralysis ending in recovery. In the 12 fatal cases death was due to broncho-pneumonia in six, to nephritis in two, to cardiac paralysis in two, and to sepsis in two. Death due to cardiac paralysis occurred in each case long after the local process was cured. In the two cases of sepsis the patients were admitted moribund. The author concludes that the results of the serum treatment were very good, and better than those previously obtained under other treatment. Although the favourable action of the serum is highly probable, yet it is impossible to speak positively from so small a number of cases, as the character of the epidemics apparently showed a tendency to become milder.—Egidi's (*Rif. Med.*, May 18, 1895) cases included one adult, the rest being from one to eight years old. Nine out of the 20 were cases of croup, of which three died; 11 were diphtheria, of which two died, giving a total mortality of 25 per cent. Bacteriological examination was made in every case; in two or three only was Löeffler's bacillus found alone; in most of the cases there was an association of streptococci and staphylococci. Fall of temperature and improvement in pulse and respiration was always

noted after injection. Even in the most severe cases improvement of the local conditions in the throat followed injection. Urticaria was noticed twice, and once a general scarlatiniform eruption. The author prefers intubation to tracheotomy. (British Medical Journal Epitome, June 6, 1895, p. 11.)

Welch (*Trans. of Assoc. of American Physicians*, x, 1895) has collected statistics of 7,166 cases treated by antitoxin up to July, 1895. There can be no doubt as to its efficacy in curing inoculated diphtheria in animals. The problem for solution is the possibility of rendering the conditions in human diphtheria similar to those in experimental. Dosage and timely administration are essential factors in the antitoxic treatment. In these respects diphtheria compares very favourably with tetanus, in which the dose of serum required increases enormously with the weight of the animal and the lapse of time after infection. Welch considers it proved that antitoxin has no bactericidal action on the diphtheria bacillus, but renders certain cells of the body (nerve cells perhaps less than others) tolerant of the toxin. The most important difference between experimental and human diphtheria is that the latter is very often a mixed infection, the most dangerous complicating micro-organism being the streptococcus pyogenes. The failure of a case of diphtheria to respond to injections of antitoxin is an indication of mixed infection and complications, such as broncho-pneumonia, which might be obviated by better hygienic conditions. The evidence as to the value of antitoxin is twofold: (1) The clinical observations of those who have had extensive experience of diphtheria; (2) mortality statistics. The former, which are almost unanimously favourable to the new remedy, are most valuable; the latter are subject to sources of error which can only be obviated by the collection of a very large number of cases. The mortality in the 7,166 cases referred to was 1,239, or 17·3 per cent. Welch estimates the previous mortality (before the introduction of antitoxin) as 42·1 per cent. Hospital reports show for 5,777 cases a mortality of 18·7 per cent., as against a previous mortality estimated at 43·5 per cent. In 663 cases in private practice treated by antitoxin the mortality was only 6·9 per cent. The mildness of the type of diphtheria recently encountered is sufficient to explain the reduced mortality; the same applies to the undoubted fact that since the introduction of antitoxin cases have been brought to hospital at an earlier stage of the disease than formerly. The relative value of the treatment in operated and unoperated cases is a question of great importance. Welch finds that the mortality after tracheotomy has been reduced from 64·5 per cent. to 42·5 per cent., that after intubation from 62·4 per cent. to 31·6 per cent. The fatality in 3,127 unoperated cases was only 11·4 per cent. against a previous

mortality of 26 per cent. Furthermore, many cases of laryngeal stenosis are relieved by antitoxin without operation being necessary, and cases free from laryngeal involvement at the time of injection rarely develop it later. Hence tracheotomy has become rarer since the introduction of antitoxin, and should in the near future give place entirely to intubation. In this latter operation serum therapy will lead to a reduction of the time during which the tube is to be kept in the air passage. The curative effects of the new treatment are most strikingly shown in the reduction of mortality among children under 2 years old from over 60 per cent. to 33·3 per cent. Behring claims that if antitoxin treatment is properly begun before the third day of the disease the mortality will fall below 5 per cent., and this is borne out by statistics. Thus out of 222 cases so treated on the first day of the disease only 5, or 2·2 per cent., died, while out of 241 first-day cases treated without antitoxin 44, or 18·3 per cent., succumbed. The percentage of deaths in 814 cases to which antitoxin was administered on the first or second day was only 5·5 ; the mortality in cases untreated till the third or fourth day is nearly three times as great (15·2 per cent.). The most striking confirmation of the value of antitoxin has been afforded where the supply ran short during an epidemic. In Baginsky's clinic the interruption of the serum treatment promptly raised the mortality from 15·6 to 48·4 per cent. (British Medical Journal Epitome, October 20, 1895, p. 67.)

The discussion at the meeting of the British Medical Association on diphtheria and its treatment by antitoxin was opened by Dr. Sidney Martin, who, after a preliminary statement on the two methods of treatment previously in vogue—the one by means of local applications which would loosen or remove the membrane from the throat, the other by remedies which would act upon the general symptoms of the disease—proceeded as follows :—"Diphtheria may be defined as a membranous inflammation of a mucous membrane, usually of the respiratory passages, due to the invasion of the bacillus diphtheriæ, which does not enter the body but forms poisons in the membrane, which produce general symptoms, fever, &c., as well as a palsy due chiefly to a nerve degeneration." The presence of nerve degeneration is here for the first time insisted upon as the pathological test of the presence of this disease. Other membranous inflammations of the throat may be due to micro-organisms, but diphtheria is the only one which leads to nerve degeneration. The pathological tests of the poisons found either in the bodies of patients dead of diphtheria or formed by the bacillus diphtheriæ outside the body is not that they

produce death, but that they produce nerve degeneration. This degeneration is then the final and most accurate test of the presence and action of the bacillus diphtheriæ. This being the essential point in the pathology of the disease, it is the foundation of the recommendation of the new remedy, antitoxin—a recommendation based on scientific principles established first in the laboratory and afterwards at the bedside. It is the function of the antitoxin to counteract the chemical poisons found in diphtheria, which are the cause of the nerve degeneration. These poisons are of two classes: one found in the membrane, the other in the tissues; and these differ in many respects. "The pathological process in diphtheria must be considered in the following manner:—When the membrane is formed, the bacilli growing in it, especially near the surface, secrete a ferment which, when absorbed into the body, produces by acting on the proteids of the body digestive products, the chief of which belong to the albumose class. It is not that the body is poisoned by a single large dose and then the action stopped (although this may occur in certain cases), but it is that numerous small doses are, in the course of the disease, absorbed into the system, and are gradually producing their effect." The chemical poison found in the membrane is of the nature of a ferment: no analysis is possible, but it has a profound effect in an infinitesimal dose, and it produces the symptoms and the pathological changes found in diphtheria. The poisons found in the tissues of patients dead of diphtheria differ from the poison in the membrane. They are of two kinds, the most important belonging to the class of digested proteids, viz., albumoses. The effects of the injection of toxin, antitoxin, and albumoses were described and illustrated, and finally it was pointed out that after the antitoxin treatment of animals there was no fatty degeneration of the heart. The investigation, of which the details were described, tended to show that the antitoxin serum is capable of counteracting to a great extent the poisons which are found in the tissues of patients dead of diphtheria.

The evidence given by Prof. Von Ranke, of Munich, was very powerfully in favour of the new treatment. His statistics showed that the mortality had been reduced from 56·2 per cent. to 17·7. Various other details were given, and the remarkable fact announced that intubation was never found to be necessary if not required within the first twenty-four hours of treatment. Prof. Baginsky, of Berlin, gave a similar record, the mortality under serum treatment having been reduced from 41 to 15·6 per cent. Dr. Campbell Hall stated that he would not feel justified in treating a diphtheria patient in any other way than by the serum method as long as serum could be procured. Other speakers were unanimously in favour of the new treatment, and

Dr. Sims Woodhead maintained that, in view of the number of experimental and clinical facts brought forward, a high degree of enthusiasm was thoroughly justified. The report on antitoxin treatment in Germany, obtained by collective investigation, on a total of 10,312 cases occurring in a period of six months from October 1, 1894, gives very striking results. Of the whole number, 5,833 were treated with serum, and 4,479 without it. The proportion of deaths in the former group was 9·6 in contrast with 14·7 per cent. in the latter. In 401 cases of children under the age of two years in which the serum treatment was used on the first and second day the mortality rate was 11·8, in contrast with 39·7 where under similar conditions it was not used. Of 2,556 children between two and ten years of age, the death-rate was 4 per cent. after toxin treatment, instead of 15·2 per cent. in the other group. Over 10 years of age only 1 per cent. in a series of 696 cases died after early treatment, the mortality in the other group being 3·7 per cent. Other results, of which details have been given, are uniformly in favour of the serum treatment.

Dr. F. A. Dixey's statistics of diphtheria in London from 1891 to 1895, gives further evidence in favour of the utility of modern treatment, inasmuch as he finds a diminution in mortality which has become apparent since the spring of 1894. The average weekly number of deaths from diphtheria for the whole year, which rose from 26·2 in 1891 to 36·2 in 1892, and to 62·8 in 1893, fell in 1894 to 51·4, and for the first half of the present year to 33·5. It is evident that from some quarter fatal diphtheria has received a very decided check, and this is not to be explained by any diminution in the occurrence of the disease, which has continued as prevalent as before. The discussion of this subject, and the very striking results which are rapidly accumulating on all sides, make it incumbent on all who have to treat cases of diphtheria to profit by the experience already acquired. If ever clinical evidence is to be accepted as a basis for treatment, we have it here in overwhelming abundance, and it will need much adverse criticism to weaken the evidence on which it becomes the bounden duty of the medical man to act in accordance with the results already acquired by scientific and clinical investigation. Dr. J. W. Washbourn, in the discussion on serum therapeutics, opened from the scientific standpoint by Dr. Klein, makes the following statement from a clinical point of view: "From a careful and critical examination of the statistics hitherto published, I have no hesitation in saying that they definitely prove the vast superiority of the antitoxin treatment over any other method of treatment that has hitherto been adopted." (Dr. Shingleton Smith, Bristol Medico-Chirurgical Journal, September, 1895, p. 197.)

In the *Münch. Med. Wochenschr.*, 30/95, Dr. H. Fürth reports on 100 cases of diphtheria treated by this method, and by way of parenthesis it may be noted here that as time progresses the reports of serum treatment get more and more uniformly favourable. This is the case also in the report before me, that of the Freiburg in B. medical and surgical klinik. Of the 100 cases treated with serum 12 or 13 per cent. died, whilst in earlier periods the mortality ranged between 30 and 50 per cent., the average being 39 per cent., whilst the present rate is less than a third of that. There were 18 mild cases, 32 of medium severity, and 50 severe cases. All the cases of whatever degree of severity that came under treatment during the first two days of the attack recovered without tracheotomy. The general condition was influenced in a remarkably favourable manner by the injections. No fixed action on the course of the fever could be determined. The local process was distinctly influenced by the treatment, as in 79 of the 88 cases that recovered no further spread of the membrane was observed after the treatment was begun. No extension to the larynx was ever observed when it was still free at the commencement of the treatment. (This is in accordance with observations already published of Rossell, Wassermann, Wiederhofer, Heubner, and Bajinsky.) In 43 cases, in which laryngeal symptoms were already present, 10 times slight hoarseness and croupy cough, and 33 advanced stenosis of the larynx—only 31 required tracheotomy; in 12 the symptoms subsided. Of the 31 that required tracheotomy, 11 died, or 35·4 per cent., as against 70·4 per cent. formerly. Of the 88 recoveries, 67 had more or less albuminuria. No unfavourable action on the kidneys could be determined. Slight disturbances of the cardiac function were observed eight times. Post-diphtheritic paralysis was observed in 4 cases (twice in the palate and twice in the palate and oculomotor region). An exanthem was seen in 10 cases on the sixth, ninth, tenth, eleventh, fourteenth, and fifteenth days respectively after the injection. In 4 cases there were sub-febrile temperatures accompanying the exanthem, 3 times moderate fever up to 38·9 C. Pains and swelling of the joints were never observed. (Medical Press and Circular, September 25, 1895, p. 318.)

Malignant Disease.

Richet and Hericourt (*Presse Med.*, May 4, 1895), communicated to the *Academie des Sciences*, April 29, 1895, details of two cases of malignant growths in which they applied the serum treatment. The serum employed was obtained from the blood of an ass and two dogs, into which the authors had injected the liquid expressed from an osteo-sarcoma of the leg removed by Reclus.

The first case was a fibro-sarcoma, about the size of an orange. It was removed in October, 1894, by Terrier, and reappeared about the size of a small nut in February, 1895. By the middle of March, when the injections were commenced, it had attained the size of a small orange. The injections were made into the cellular tissue round about the tumour, 3 c.cm. for each injection daily, and were continued during 40 days, representing a total dose of 120 c.cm. By March 26 the tumour was manifestly smaller, and progressively diminished, until at the conclusion of the treatment it was reduced to a small indurated plaque. The general condition of the patient had also improved. The second case was one of cancer of the stomach, showing itself by a tumour as large as an orange in the epigastric region of a man 44 years of age. The treatment was commenced on April 6, 1895, by the injection of 4 c.cm. of serum. From this date until April 24 the relatively considerable dose of 64 c.cm. was injected. An amelioration in the general condition of the patient immediately took place. His weight increased from 57 kilogrammes on April 10 to 60 kilogrammes on the 23rd of that month. On April 10 also the tumour had diminished in volume, and this diminution was so rapid that on April 20 there was no longer felt any isolated, prominent growth. Palpation of the epigastric region only gave the impression of a vague, deep resistant spot, difficult to define. (British Medical Journal, June 1, 1895. Epitome, par. 426.)

Emmerich and Scholl (*Deut. med. Woch.*, April 25, 1895) relate their clinical experience of the treatment of carcinoma with erysipelas serum. They first refer to Coley's researches into the treatment of inoperable tumours, both carcinoma and sarcoma, with bouillon cultures of the erysipelas coccus inoculated with B. prodigiosus. In addition to the favourable results obtained by Coley, there were some unpleasant by-effects. The authors inoculate sheep with erysipelas cultures, and free the blood serum from micro-organisms by filtration. They have treated a number of cases of carcinoma (and sarcoma) with this serum during the past half-year. In only two cases were there no results, and here there was secondary infection with suppurative changes in the carcinoma. Details are then given of six mostly advanced and quite hopeless cases ; four of these were examples of recurrent mammary carcinoma, another of rapidly-growing and inoperable mammary carcinoma, and a sixth of long-standing cancroid. (1) A recurrent mass was present in the scar as well as carcinomatous glands in the axilla, and the whole of the infra-scapular space was infiltrated with growth. The masses in the scar and axilla disappeared under

the treatment, and the improvement was such that the patient could move her arm. (2) The hard masses about the scar disappeared, but a larger mass did not become less before the treatment had to be unavoidably suspended. (3) There was an ulcerating mammary carcinoma with metastases. Several of the masses became less, and the general condition of the patient greatly improved. (4) A metastasis in the upper arm disappeared in another case. (5) A large and rapidly-growing mass of carcinoma in the breast and axillary glands rapidly became less. The mass in the axilla diminished to half its original size in fourteen days. (6) Great diminution in size occurred in a cancroid in the face. The author thinks that the action of the serum is specific ; it is probably even more efficient in sarcoma than carcinoma. It cannot yet be decided whether it acts on all forms of carcinoma. The younger the carcinoma the better the results, but older carcinomata soften and become absorbed. The amount of the injection must depend on the size of the growth and the condition of the patient ; 1 to 4 c.cm. of the serum injected daily into the growth suffices for small tumours ; 10, 15, 20, or 25 c.cm. may be injected into a large tumour. No pain was noted with the smaller injections, and in no case was it necessary to give up the treatment on account of pain. There was usually no fever. The action on the general health was remarkable. A pseudo-erysipelas was sometimes noted, lasting from twenty-four to forty-eight hours. The serum should not be used only in inoperable and hopeless cases, but, injected before operation, it should complete the work of the surgeon, preventing recurrence. The authors say that thus surgery and internal medicine will assist each other. They draw attention to the difficulties and expense in preparing the serum, and the object remains to make the serum as powerful as possible. This method of treatment is in its infancy, and further clinical investigation is much to be desired. (British Medical Journal Epitome, May 11, 1895, p. 75.)

Emmerich and Scholl (*Deutsch. med. Woch.*, May 30) reply to Bruns's strictures on the serum treatment (see *Epitome*, June 15, par. 464). They complain that a case in which Bruns reported to them a decided diminution in the growth is omitted ; that the serum was sent to him for preliminary trial during a time when its exact method of preparation was not decided on ; and that too many cases were treated with too little of the serum. They further state that the serum used in some of these cases had become infected and spoilt (after transmission), and they express surprise that it should have been used after it had become flocculent. They have treated cases with much larger doses than Bruns with no unpleasant after-effects. The alarming symptoms produced were due to the injection of the serum into

the vessels of the growth. They advocate equally with Bruns early operation.—Before the Munich Medical Society (*Münch. med. Woch.*, May 21, 1895) Angerer maintained that Emmerich's serum had no specific curative action. Emmerich treated five cases in the author's clinic. In the first two cases no histological changes could be found, the injections having been given before operation. In the third case erysipelas came on and threatened the patient's life. Neither the injections nor the erysipelas had any effect on the tumour. In the fourth case (No. 1 in Emmerich's paper, *Epitome*, May 11, 1895, par. 367) a diminution in the nodules was observed, but the erysipelas which supervened might account for it. The subsequent history showed that, after the patient's discharge from hospital, new nodules appeared, and death occurred from cachexia. The subsequent history of the fifth case (No. 2 Emmerich) was also unfavourable. The author emphasises the fact that great caution must be exercised in drawing conclusions. Zimmermann then reported a case in which a diminution in the tumour took place. An afebrile erysipelas appeared on the fifth day, and lasted two days. Emmerich himself was unable to attend the meeting.

Meningitis.

In a severe case of acute meningitis due to Frankel's diplococcus in a child aged seven years, Righi, on the advice of Prof. Vincenzi, injected serum obtained from the blood of a sister who was in full convalescence from a similar attack of acute meningitis. The hypodermic injection of this serum in doses of 5 c.cm. had the effect of rapidly ameliorating the patient's condition, both as regards the fever, strabismus, and partial facial paralysis. Recovery quickly followed upon this welcome therapeutic measure. (Gaz. degli Osped. e delle Clin., October 24, 1895.)

Tetanus.

It seems that the serum treatment has not actually changed the prognosis in acute and serious cases. I believe, from the accounts of cases, that in milder cases it lessens the spasms, the pain, and the distress, and that, apparently, it has reduced the mortality of such cases, but to what extent we cannot tell until we are in possession of a larger number of cases, and until we are certain that all cases are published. I am not posing as an opponent of the serum treatment, but I ask it to be clearly understood that, so far as tetanus is concerned, the antitoxine is still on its trial, and that no really acute, or otherwise hopeless, case has yet been cured. While the whole matter is in such an undeveloped condition, it is preposterous that the

Italians should tempt us to pay an immoderate and exorbitant price for a substance which may turn out to be of little use as a curative agent. Antitoxic serum is now obtainable from the Institute of Preventive Medicine at a nominal figure. It is our duty to use it in all but hopeless cases, and, where an occasion arises, to employ it for the purpose of preventive inoculation, *i.e.*, in injuries which have been contaminated with dirt or earth, and which have not received immediate attention or could not be thoroughly cleaned. (From Dr. Kanthack's paper in the Medical Chronicle, May, 1895.)

Matteucci (*Rif. Med.* April 22, 1895) reports the case of a man whom he first saw on March 15, complaining of general *malaise*, rheumatic pains (attributed to a chill), and some stiffness of the jaw. On March 19 there were decided symptoms of tetanus—risus sardonicus, opisthotonos, rigidity of the lower limbs. There was no history of injury and no recent scar. The only supposed cause was a chill three or four days before, when the patient was suffering from aphthous stomatitis. On March 23 the patient was worse, speech was hardly intelligible, the finger could not be introduced into the mouth, and tetanic spasms occurred—about twenty every hour. Tizzoni then saw the patient, and injected 30 c.cm. of antitoxic serum (of 1 to 10 mil. immunising power) prepared by him and taken from a horse two days previously. On March 24 the patient was better, the spasms were less intense, less frequent, and less painful. The injection was followed by a copious eruption of urticaria, rise of temperature (39° C.), and profuse sweating. Injections of 10 c.cm. were made on the 24th, 25th, and 26th, and were also followed by urticaria and raised temperature, but to a less degree. After the injections were begun the patient steadily improved, so that on April 1 the abdominal walls were relaxed. On April 5 mastication was possible, and on April 8 recovery was complete and he was able to leave his bed. Sedative injections of morphine were used as supplementary aids to the antitoxin treatment. (British Medical Journal Epitome, June 29, 1895, p. 104.)

SERUM, DIPHTHERIA.—Protective Effects.

Considerable evidence has recently been adduced regarding the protective effects of the antitoxine of diphtheria. Dr. F. Gordon Morrill, in the *Archives of Pædiatrics* for July, reports the results of 438 protective injections made at the Children's Hospital of Boston. During the year 1894 this hospital was closed three times on account of the prevalence of diphtheria. On January 13, 1895, there were nine cases of diphtheria in the

infectious ward, five of which had appeared within forty-eight hours. The question of closing the hospital for the fourth time was discussed, but it was decided first to try the protective effect of the antitoxin. Injections were at once made, and the apparent result of this first attempt was to arrest instantly any further spread of the disease. Although the children were frequently examined for bacilli none were found until January 29, when they were discovered in one case. Upon this all the children were again subjected to the injections. No bacilli were again found until February 15. Injections were at once given in all cases in which they had not been employed within two weeks, and a rule was established to repeat them every fortnight. With regard to the protection afforded by the antitoxin, experience tended to show that the serum could be relied upon to protect against anything that resembled diphtheria clinically for at least thirteen days, and probably for a longer period. The writer is convinced that full doses of serum have no influence on the mere presence of bacilli after they have once obtained a foothold. He believes that our estimate of the results of the serum treatment must be based upon such cases as are clinically diphtheria, the diagnosis of which is confirmed by bacteriological examination. As to the value of the antitoxin as a protective agent he seems to have no doubt.

Dr. L. Emmett Holt, in the same journal, reports the result of the use of the antitoxin for protection in the Nursery and Child's Hospital and in the New York Infant Asylum. In the first-named hospital, between January 18 and April 18, forty-six cases of diphtheria occurred, the diagnosis being confirmed in each case by cultures. They were not confined to a single ward, but were scattered throughout the institution. During the last two weeks of this period the number of new cases was steadily increasing. On April 18 one hundred and ten children were injected with serum obtained from the Board of Health, and eight days later twenty-six were injected. This included all the children except those who had recently had diphtheria and twenty infants under two weeks of age. From that day to June 21, the date of the report, not a single case of diphtheria occurred among the children injected. In the New York Infant Asylum, in three months, 32, 30, and 31 cases of diphtheria appeared. During the first fourteen days of January 12 cases developed. Two hundred and four children were then injected with Behring's antitoxin No. 2, the dose being from 100 to 200 units. No case of diphtheria appeared for eighteen days, when one developed. As several cases appeared about the fortieth day, 215 children were injected with serum obtained from the Board of Health. No case appeared thereafter for thirty-one days. From the thirty-first to the sixty-fifth day 3 cases

appeared. After that no cases occurred. The shortest time after injection at which diphtheria developed was on the thirteenth and on the eighteenth day. With these two exceptions no cases appeared under thirty days, although the children were constantly exposed to infection. The writer expresses himself as convinced that injections of antitoxin for protective purposes are of inestimable value. (New York Medical Journal, July 13, 1895, p. 58.)

SERUM TREATMENT OF SYPHILIS.

The treatment of that widely-spread disease, syphilis, has received a considerable amount of attention from the medical fraternity, and a very large number of drugs have at various times been lauded as specifics for this fell complaint. At the present time there is a prevailing rage for the treatment of contagious diseases with serum derived from an immune animal, and I purpose placing on record briefly the results I have so far obtained by treating syphilis with injections of serum obtained from an individual who has had syphilis. I will briefly relate the results so far obtained in 18 cases where this method has been the only one employed in treating the disease. (1) In the early stages of syphilis, *i.e.*, when there is only a sore and glandular enlargement, injections of this serum cause the sore to heal rapidly. The adenitis in the groin generally becomes intensely marked, the skin and throat symptoms are absent or only slightly marked. (2) Where the case is not seen until the rash and throat symptoms develop, the skin eruption fades rapidly, much more rapidly as a rule than under mercurial treatment, but the throat symptoms disappear rather slowly. (3) The general health improves. (4) The serum from an individual with well-marked secondary syphilis appears to be more active than that obtained from a patient with tertiary symptoms. (5) I have not yet accurately determined the amount to be injected, but I have used the serum in doses of $\frac{1}{2}$ to 5 c.c. The above are the conclusions I have arrived at after over six months' experience with this method of treatment. The number of cases is too small and length of time too short for me to speak much more definitely upon this method, but I shall be glad if other members of the profession will give the method a trial and report upon it. Especially would I recommend its trial and report by army surgeons, as they have much more opportunity of observing and reporting upon the treatment of syphilis, from the fact that they can keep their cases under observation for a prolonged period, a thing which is next to impossible with hospital patients. (From Mr. Cotterell's paper, Medical Press and Circular, August 28, 1895, p. 205.)

SULPHONAL.

Bresslauer and Joachim (*Centralbl. f.d. gesammte Therapie*, August, 1895) compare the value of these hypnotics: (1) Sulphonal has certain disadvantages. Its action is slow, owing to its being nearly insoluble, and sleepiness rather than sleep is produced. After long use (*a*) vomiting and constipation; (*b*) ataxia of the lower limbs with paralyses and muscular spasms; (*c*) anuria, ischuria, and hæmatoporphyrinuria have been observed, some of these cases ending fatally. The authors have had no bad results since they made a rule never to give it for more than three days in succession, in doses not exceeding 2 g. *pro die*, and to regulate the bowels and kidneys. It should be exhibited always in hot water (tea, &c.) in as good solution as possible. (2) Trional acts excellently in neurasthenic insomnia, chronic and periodic mania, &c. The authors (contrary to the experience of many) have had good results also in melancholia, and hallucinations accompanied by violence, even 0·5 g. having a sedative effect. Experiments have shown that animals can be poisoned in exactly the same way as with sulphonal, and in man up till now 4 cases of poisoning (2 fatal) have been recorded. Its action is cumulative and delayed from 15 minutes to 3 or more hours after administration, but this is not nearly so marked as with sulphonal. Sleepiness continues in some cases during the next day and even night. Symptoms of poisoning were observed in a number of cases after continued administration, namely, dulness, giddiness, headache, anorexia, obstinate constipation, ataxia of the lower limbs, and sometimes oliguria or even strangury. Noises in the ears, cutaneous hyperæthesia (Friedländer), any marked action on the heart and respiration or epigastric pain (Koppers Römert) were never observed. Such transitional cases lead up to the more marked ones of chronic poisoning, where the symptoms are very like those of sulphonal poisoning, ending in hæmatoporphyrinuria, hyperacidity of the urine, and death. Reinecke recently reported a case in which 40 g., spread over three months, caused severe poisoning. The fact of this idiosyncrasy makes the following rules necessary:—(*a*) Trional must never be given continuously in larger doses than 1 to 2 g., and always in a large quantity of warm fluid—soup, tea, &c.—in which it is readily soluble; (*b*) after administration for four to six consecutive days, breaks of several days must be made; (*c*) the patient should take some natural alkaline mineral water during the course; (*d*) constipation must be corrected; (*e*) if hæmatoporphyrinuria be present, the drug must be discontinued at once, diuresis and free evacuation of the bowels obtained, and the blood neutralised with 4 to 6 g. sodii bicarb. *pro die*. If these precautions be taken, trional is one of the best and relatively safest hypnotics. (3) Tetronal has all the disadvantages

of sulphonal without its power, its action being more sedative than hypnotic. If given, all the precautions necessary for sulphonal and trional must be taken. (British Medical Journal Epitome, September 21st, 1895, par. 239).

TANNIGEN IN ENTERITIS.

Tannin, though a very valuable and powerful drug, has, when given in large doses, so serious an effect on the stomach, producing nausea and vomiting, and, indeed, almost cauterising the mucous membrane, that its use is necessarily much restricted. Professor Meyer of Marburg, however, recently discovered a combination of tannin with acetic acid which passes through the stomach unchanged, and, therefore, without doing any injury, but on entering the alkaline intestinal tract it breaks up, tannin and acetate of potash being formed. That this has a very powerful effect on the intestine was shown by experiments on animals, and subsequently by clinical observations in Professor Miller's policlinic in Marburg, of which a short account is given in an article by Dr. C. Kunkler. There were forty-one patients, mostly children, who nearly all suffered from chronic enteritis. Many of them had been already treated with but little success by means of naphthalin and bismuth, but they were all, as far as could be ascertained under the conditions of out-patient practice, very greatly benefited, most of them, indeed, really cured, by tannigen. Dr. Kunkler recommends that at the commencement of an attack of enteritis a powerful disinfectant, as naphthalin or calomel, should be given in combination with the tannigen, and that the latter can subsequently be continued for some little time after the catarrhal symptoms have passed off in order to allay the irritability of the intestinal canal and to guard against a possible return of the attack. Tannigen, which is a yellow, tasteless, insoluble powder, must not be given milk but in boiled water or oatmeal grouts (Hafergrutze). It has been shown to be quite harmless in doses of forty-five to fifty grains, but generally three to seven and a half grains per diem are sufficient. The children in the policlinic were ordered a grain and half to three grains three times a day, infants a few weeks old taking the smaller dose ; older children and adults were sometimes given a larger dose, and occasionally as much as seven and a half grains. (The Lancet, April 20, 1895, p. 1004.)

THYROID FEEDING IN GOITRE.

Bruns (*Beiträge zur klinischen Chirurgie*, xiii.) reports the results of the treatment of 60 cases of goitre with thyroid. Cases of benign parenchymatous goitre were put under treatment without selection. Cystic cases and those of malignant disease were excluded, as were also cases of exophthalmic goitre, in

which, as has been shown, thyroid-feeding makes the symptoms worse. Instead of raw thyroid, tabloids were used in the dose of two daily to adults, one to children. By this method of administration intoxication is least likely to occur. Unpleasant symptoms, such as palpitation of the heart, nausea, diarrhœa, tremor, headache, &c., were treated by temporary withdrawal of the remedy. The duration of treatment was from three to four weeks on the average. In young children complete recovery was the rule. In older children marked diminution in the size of the goitre was observed with cessation of symptoms. In adults recovery was rare and less common in proportion to age. Complete return of the thyroid to its normal size is not to be expected later than the twentieth year. In some cases in which tracheotomy seemed necessary thyroid-feeding removed the pressing symptoms, and in cases of partial resection of the gland with hypertrophy of the remaining part the enlargement was reduced by treatment. Mild relapses were seen only three times, and in each case rapidly relieved by renewal of treatment. (The American Journal of the Medical Sciences, May, 1895, p. 573.)

THYROID TREATMENT IN MYXŒDEMA COMPLICATED BY ANGINA PECTORIS.

A man, aged 48, came under my care some months ago, having suffered from myxœdema and occasional attacks of angina pectoris for several years. The patient not having received any appreciable benefit from treatment, I determined to try thyroid extract, watching carefully the effect upon the heart. I began with half a tabloid (5 gr.) twice a day. On the fourth day he was seized with two most severe attacks of angina, lasting over an hour, and gave me much anxiety. I at once stopped the extract, but at the end of a few weeks, at his request, I made another trial, giving him the unusually small dose of $2\frac{1}{2}$ gr. every second day. He experienced no discomfort until the twelfth day, when he again had a severe attack of angina pectoris, and I had again to discontinue the extract. Neither before nor since have his attacks been anything like so serious. The pathology of the case is puzzling, as Schäfer has recently pointed out that thyroid extract distinctly lowers the blood pressure. Perhaps the angina was produced by its action on the central nervous system. (H. C. L. Morris, M.D., The Lancet, Sept. 28, 1895, p. 788.)

TRIONAL.—Hypnotic value of.

In the *Medical Bulletin*, 1895, No. 2, p. 41, Dr. Hewitt expresses his belief that the competition, struggles, anxieties, and responsibilities of commercial and professional life in populous

communities constitute such a strain upon the nervous system in general, and the brain in particular, that insomnia, or a not very deep nor refreshing sleep, results. For this drug he claims that 10 to 20 grains in warm fluids will produce sleep without producing toxic manifestations, depression of the action of the heart, or the force of the circulation. The sleep is sound and refreshing ; the patient awakens readily and with a clear head. There is little or no tendency to the formation of a habit, as no cumulative effect has been observed in some instances when the drug has been given without sufficient interval of time to allow for thorough elimination from the system. If administered for considerable periods of time and in large doses, it is a matter of prudence to watch the kidneys. It is useful in simple insomnia, in many chronic diseases unattended with severe pain, in mental affections of a mild character or in an early stage, and in the restlessness, excitement, and insomnia of insane patients. (The American Journal of the Medical Sciences, April, 1895, p. 455.)

TUBERCULOSIS.—Heredity of.

Since the discovery of the bacillus of Koch, considered rightly as the germ of tuberculosis, the question of heredity has been agitated in certain centres, and medical men of very high standing have gone so far as to deny the possibility of hereditary transmission. The recent communication made by MM. Bar and Renon at the Société de Biologie on the discovery of the bacillus in the blood of the fœtal cord is consequently of the highest interest, confirming as it does clinical observations and settling the question once and for all. To elucidate the question of direct transmissibility, said M. Bar, by the placenta of the bacillus of Koch from the mother to the fœtus in the human species he had, in five instances, obtained at the moment of birth a certain quantity of blood as it flowed out of the placental end of the umbilical vein, and injected it at once under the skin of the abdomen of guinea-pigs. In three cases the results were negative, that is, the animals did not become tuberculous, but the remaining two gave very positive results. The first of these was that of a woman in the third stage of consumption, and whose expectoration contained the germs of Koch. She was delivered of a fœtus that had died the day previous; the placenta did not present any apparent lesions. The blood flowing from the umbilical vein was injected into a guinea-pig, which succumbed two months later from tuberculosis of the liver and the spleen. The autopsy of the fœtus was practised immediately after its expulsion, but no signs of tuberculosis could be discovered in the organs. However, the pulp of the liver and the lungs was injected into two more guinea-pigs,

both of which succumbed with all the signs of tuberculous infection, ulcer at the seat of inoculation, granulations of the liver and spleen, &c. In the second case the mother had large pulmonary vomicæ; the expectoration had not been tested. The child died on the fortieth day from broncho-pneumonia. At the moment of birth the blood of the umbilical vein was injected into two guinea-pigs. One of the animals lived, while the other succumbed with a chancre of inoculation and a generalised visceral tuberculosis. The speaker concluded by saying that if other experiments on the same line were made the question of the transmissibility of tuberculous disease from the mother to the fœtus would be definitely proved. (Medical Press and Circular, August 21, 1895, p. 185.)

TYPHOID BACILLI IN DRINKING WATER.

It is now generally admitted that drinking-water is often the vehicle of infection in typhoid fever. The exact conditions that befriend or antagonise the specific germ in water have naturally been made the object of study by many investigators. These studies, however, have led in many cases to results so conflicting, and have been based in general on methods and material so diverse, that the chief outcome has been confusion. A paper on this subject, entitled "On some Conditions affecting the Behaviour of the Typhoid Bacillus in Water," appears in the *Philadelphia Medical News* of September 28 from the pen of Dr. E. O. Jordan, of Chicago. The nature of the experiments is carefully given. Without going further into detail we here give the general results arrived at by Dr. Jordan. (1) The age of the typhoid fever stock influences greatly the life of the bacilli introduced into water, a freshly isolated stock possessing distinctly greater vitality than one that has been under cultivation for some months. (2) The typhoid fever bacillus, when introduced with proper precautions into sterilised Lake Michigan water, does not multiply, but may, under certain conditions, maintain its vitality for upwards of ninety-three days. (3) The colon bacillus, on the contrary, under similar conditions, undergoes rapid multiplication, and may remain alive for upwards of 262 days. (4) In redistilled water the typhoid fever bacillus perishes much more speedily than in the water of the lake. (5) The quantity of organic matter (peptone) in redistilled water influences fundamentally the life of the typhoid fever bacillus, so small an increment as 0·0126 organic nitrogen (part per 100,000) causing a perceptible lengthening of life. (6) In sterilised lake water the addition of a still smaller quantity of organic nitrogen—0·0012—affects the longevity of the typhoid fever bacilli introduced. (The Lancet, October 19, 1895, p. 997.)

TYPHOID FEVER, GANGRENE IN.

Quervain (*Centralblatt für Innere Medicin*, 1895, No. 33, p. 793) has reported the case of a man, 25 years old, in which in the course of an attack of typhoid fever gangrene of the right lower extremity set in, eventually requiring amputation above the knee. The patient ultimately recovered. On examination of the amputated member the popliteal artery and vein were found occluded by thrombi, and an abscess in the muscular tissues below the knee. Examination of the pus from this collection disclosed the presence of typhoid bacilli. (Medical News, September 14, 1895, p. 300.)

TYPHOID FEVER IN CHILDREN AND INFANTS.

By Dr. L. Stowell (*New York Medical Record*, March 16, 1895). In this paper, which he designates as a clinical study of the disease as met with in young children and infants, the writer gives us a comparative study of 34 cases met with during the past ten years in his hospital practice, and which were diagnosed by him as typhoid fever. Tympanites was nearly always present to a slight degree, and also gurgling at the ileo-cæcal valve. Diarrhœa was present in 29·5 per cent. of the cases. A few were constipated, though loose stools usually occurred a few times before recovery, The stools in some cases are said to have answered to the "pea soup" description. Hemorrhage of the bowel did not occur in any of his cases. In 20 (66 per cent.) rose spots appeared, usually on the eighth day; in 2 cases they were profuse. Most of his cases occurred during the autumn months. In duration, his shortest case lasted ten days, the longest fifty-two days; in 3 cases there were relapses. In age the two youngest were twelve months and seventeen months respectively. Epistaxis occurred in 7 cases. The temperature ran high continuously in 1 case; in others it was more irregular. Pneumonia occurred in 3 cases. Bronchitis was common. Although enteric fever in childhood is lightly spoken of, there are many autopsies reported. Whittaker says one should be slow in childhood to accept the diagnosis of typhoid fever. Most of such cases are typhoid conditions of pneumonia, tuberculosis, &c. And Meigs and Pepper say that the mildness of the disease in childhood may be due to the glands of Peyer being less fully developed than in the adult. Nevertheless we have undoubted cases of death occurring from this disease, even in the earliest days of life. Bednar records a case of an infant five days old presenting typhoid symptoms and dying on the seventeenth day. Ernst reports an infant born of a mother suffering from enteric fever. The child died on the fourth day. The spleen was enlarged, and the blood of the heart showed typhoid bacilli. Eberth has also demonstrated typical bacilli in

the organs of four fœtuses aborted by mothers having typhoid fever. In the Montclair epidemic of 1894, due to infected milk, eight infants developed the fever. Dr. Stowell draws the following conclusions from a *resumé* of all reported cases :— (1) The disease is common in childhood and not more rare in infancy than is explained by lack of exposure ; (2) the types and varieties do not differ materially from those of adults ; (3) the duration is shorter because the tendencies in childhood favour growth and repair more than in the adult ; (4) the prognosis is better in children, but in early infancy it is high. In the discussion which ensued, Dr. Northrup asserted that from his experience as Pathologist to the New York Foundling Asylum, where he had more than 2,000 autopsies on children, he considered that typhoid fever was not a disease affecting infants under two years of age. The diagnosis of typhoid fever must rest on the same points as in the adult, but splenic enlargement could only be diagnosticated in the infants, when the spleen could be felt below the free border of the ribs, and enlarged mesenteric nodes, swollen Peyer's plaques and solitary follicles, with enlargement of the spleen, were not infrequently met with in autopses on infants whose clinical history would exclude typhoid. (Dr. Blackader in the Montreal Medical Journal, May, 1895.)

VARIOLA.—The use of Vaccine Serum in.

In a paper on this subject, Dr. Llewelly Elliot says :—From my limited experience with vaccine serum I conclude—(1) Vaccine serum modifies variola ; (2) vaccine serum has a marked influence upon the eruption of the disease, in that the papules or vesicles abort and the pustules desiccate ; (3) vaccine serum prevents pitting ; (4) vaccine serum should be accorded a place in the therapeutics of variola. Whether or not my experience will be confirmed by that of others I cannot say ; it remains for future investigators, working upon the same lines, either to prove or disprove my conclusions. (Medical News, June 29, 1895, p. 726.)

VEAL.—The danger of.

At the Académie de Mèdecine, M. Vallin spoke on the dangers of poisoning from veal as a food. It was well known, he said, that very young veal causes frequently diarrhœa, and arises from the fact that either the animal of a few days or weeks old died from disease, or they were killed a few hours before their "natural" death. The two virulent maladies from which these animals perish are acute septico-pyæmia consecutive to phlebitis of the cord or septic diarrhœa. In the case of the former malady, the autopsy reveals the presence of deep suppurations of the organs, metastatic abscesses, and pus in the veins. The

flabby flesh of the animals is cut up into mincemeat, and associated with the flesh of pork, is formed into pies, which are simply poisonous. In chronic cases the duration of the affection permits the infiltration of the flesh of ptomaines and other micro-organisms that cooking does not modify ; consequently, from six to 24 hours after ingestion of the meat, symptoms of cholera nostras set in, which in some cases have ended in death. Similar effects are produced where the animal died from septic diarrhœa, and it behoved the sanitary authorities to pay more attention to the slaughter for food of such animals, and to destroy all those known to be affected with the above diseases. (Medical Press and Circular, June 5, 1895, p. 599.)

WHOOPING COUGH.—Quinine in.

Dr. Theodor Fischer uses quinine in comparatively large doses in this disease. He finds that it is well borne. He draws the following conclusions :—(1) It diminishes the number of attacks essentially in five days at latest ; (2) it reduces even the most vehement whooping-cough to a mild bronchitis in 12 to 15 days ; (3) it influences most favourably a possibly existing broncho-pneumonia ; (4) it often stimulates the appetite. (New York Medical Journal, May 11, 1895, p. 594.)

AFFECTIONS OF THE NERVOUS SYSTEM.

ACUTE DELIRIOUS MANIA.—Treatment of.

Dr. George L. Sinclair, in a lecture on this subject, thus describes the treatment :—The first question to be decided is as to the necessity or desirability of sending the patient to the hospital for the insane. If the house in which the patient lives will permit of a portion of it being set apart as a hospital, and if the means of the relatives will permit them to employ the necessary skilled nursing, many of such cases can be cared for at home. The patient requires the care needed by one ill of serious bodily disease, constant attendance of nurses trained in such work, directed by a physician experienced in such cases. The great indications are to procure sleep and to feed regularly upon nutritious, easily-digested food. For the first, various hypnotics can be used. Chloral, all things considered, acts very well. Chloralamid also at times procures sleep, and I have had fair success in some cases with sulfonal. Opium is not usually considered very desirable, though in my experience the bi-meconate of morphine has sometimes given me satisfactory results. The cases seen by me have been those sent here because their friends were unable, for many reasons, to undertake the care of them at home. We put them to bed and endeavour to keep them there. If they tear their clothes

or bedding we put a "strong suit" upon them, and we feed them regularly upon milk, eggs, broth, beef-tea, or Bovinine, and use stimulants where we think the case calls for them. I am a firm believer in the hypnotic power of a good milk-toddy, aided by the recumbent position of the patient. Such a means of inducing sleep is greatly to be preferred to the administration of drugs. Where food cannot be given by coaxing we use the nasal tube, through which, of course, only fluids can be given, but there is no form of diet more useful than milk, alone or in combination with sugar, eggs, and whisky. If thought necessary, an aperient can be administered with the food through the tube, or a solution of chloral or other hypnotic. I have seen cases so violent, noisy, and destructive that some form of calming medicine was called for, and for these the hydrobromate of hyoscine, grain $\frac{1}{120}$, administered hypodermatically, has acted well ; for such we use also the warm bath, combined with cold applications to the head by means of towels wrung out in ice-water, with good effect. The wet pack has proved of marked benefit also in such cases, producing calm, and finally sleep. But, after all, careful and intelligent nursing is the main thing. The patients rapidly emaciate and show signs of great physical exhaustion. If, by means of food, stimulants and rest, you can tide them over the first two or three weeks, they usually begin to improve in body, and, although the mental change for the better may not keep pace with the bodily gain, the tendency is to final restoration. The fatal cases usually die within the first fortnight of treatment, and in such the system appears to be overwhelmed by the force of the disease, and is unable to rally or respond to any form of food or stimulant. In our ordinary experience fully one-half of our cases have died. This year has proved an exception, and we have lost only two of the patients admitted. The sooner supporting treatment is begun, and the more steadily it is carried out, the better are the prospects of recovery. (International Clinics, third series, vol. 2, p. 142.)

ARSENICAL MULTIPLE NEURITIS FOLLOWING A CANCER CURE.

The diagnosis in this case became quite clear after my interview with the "cancer doctor." Even in the absence of the information afforded by him only two or three other hypotheses were, I think, probable :—(1) In the very early stage hysteria was, I think, a mistake easily made. Such a diagnosis was, however, soon negatived by the absence of the knee-jerk, which, though it may be exaggerated, is present in all cases of hysteria where there is no voluntary contraction of the flexor tendons of the knee. (2) Alcoholic paralysis, which, as far as the symptoms

and physical signs in the extremities were concerned, would be practically indistinguishable from arsenical palsy. Here we had to rely mainly on the history, and I know of no reason for disbelieving the patient's statement, that she never took stimulants. The condition of the breast, conjunctival irritation, alteration in colour of hair, &c., would be inexplicable on supposition of chronic alcoholism. (3) Locomotor ataxy, though suggested by the inco-ordination and absence of knee-jerk, is excluded by the manifest impairment of muscular power, by atrophy, by the absence of the Argyll-Robertson pupil, and of any vesical or rectal trouble. *Prognosis.*—In cases of acute arsenical poisoning the greatest danger to life is during the first six days. Should these be successfully tided over, there is always the possibility of the occurrence of nervous sequelæ, such as are above described. Recovery from these is exceedingly slow, months elapsing before the patient is sufficiently convalescent to be discharged from hospital. Probably in all cases there is a greater or less amount of permanent mischief done, in some cases so slight as to be only detectable on careful examination, but in others so distinct as to interfere with the patients resuming their former avocation. This patient has recovered to a considerable degree, but, although nine months have passed away since the "cure" was applied, she is still far from being as strong as she formerly was. *Treatment.*—During the days of acute pain anodynes and sedatives are generally necessary. Later on electricity, massage, and friction help to maintain the nutrition of the muscles, and to a considerable extent prevent their atrophy. As soon as the diagnosis of this case became clear, the patient was given large doses of iodide of potassium. Müller's view that this line of treatment hastens the elimination of the arsenic is not universally accepted, but I thought it worthy of a trial. Subsequent examinations proved that the arsenic had been all eliminated before the patient had even commenced to take the drug. She was fed liberally, and nature was assisted as far as possible in carrying out her own cure. (From Dr. W. R. Parson's paper in the Dublin Medical Journal, September, 1895, p. 199.)

BRAIN SURGERY.—Advances in.

By Von Bergmann before the Congress of the German Society for Surgery in Berlin. (*Wien. klin. Rund schau*, June 23rd, 1895.) He alludes quite briefly to the operative treatment of cranial tumours. According to Starr's trustworthy researches, out of 100 tumours of the brain only 6 are at the same time recognisable and removable, and of these a successful operation will be performed upon scarcely a half. So surgery can do little enough in the treatment of such affections, in spite of the advances in diagnosis and particularly in the technique of

operations. The hope to cure epilepsy, at least Jacksonian, by operation proved deceptive, and one can now really regard as an object for surgical interference only those cases of cortical epilepsy, in which a tumour, for instance a cyst, which may arise not altogether rarely from a traumatic intra-meningeal extravasation, lies in or over one of the circumscribed cortical centres. Very significant, on the other hand, are the advances in the domain of the surgical treatment of intracranial suppurations, especially the aural abscesses involving the brain, the meninges and the sinuses. These are relatively rare. Out of 1,000 acute and chronic suppurations of the ear, three or four cause death from extension to the meninges, the sinuses, or the brain itself. The chronic processes are particularly dangerous, and especially those arising from masses of cholesteatoma in the inner ear. Those cases are very critical which are marked by acute or subacute outbursts and have an intermittent fetid discharge, and in which at the same time temporary obstructions arise to the discharge of pus, through the growth of polypus-like granulations in the middle ear and the deeper part of the external meatus. The aural affections of the brain, the meninges and the sinuses begin, as a rule, at the point where the original suppuration in the temporal bone has pushed up to the vault of the skull. But a main point of aural suppuration is the cochlea. Thence the process spreads in two directions, into the mastoid antrum, and through its roof, the tegmen tympani. The spread of suppuration in the latter direction leads directly to a pachymeningitis, from this to an extradural (epitympanitic) abscess or to an intradural abscess of the brain. Most cerebral abscesses of aural origin lie in the temporal lobes, and so the chief extension is through the small and circumscribed point of exit in the vault of the tympanic cavity. Bergmann explains his method of reaching the roof of the tympanum from the cranial cavity by lifting up a parallelogram $2\frac{1}{2}$ cm. high by 3-6 cm. wide from the vault of the temporal bone, and shows how one can in this way easily enter the mastoid process, the external meatus and the sigmoid fossa. The greatest advance which brain surgery has made in recent years, Bergmann sees in the operative treatment of thromboses of the sinuses caused by and associated with suppuration. Most of these are due to the extension of aural affections of the mastoid process to the wall of the sigmoid fossa and the consequent infection of the adjacent sinus wall. In many cases there is extensive suppuration enveloping the sinus, very often at the same time epitympanal abscess. It was Zanfall's idea to thwart the disastrous results of septic thrombi of the transverse sinus by tying the jugular vein and then opening and clearing out the sinus. The sinus can be reached also from the mastoid process as well as from the cranial cavity

after craniectomy at the vault. The latter method Bergmann describes as the ultimate supplanter of the former. Thrombosis of the transverse sinus with the abscesses around the sinus is also the usual connection between middle ear suppuration and abscess of the cerebellum, the latter generally situated near the sigmoid fossa. (The Journal of the American Medical Association, August 17, 1895, p. 288).

CEREBELLAR DISEASE.—Symptoms based on an analysis of 100 cases of.

To summarise, the symptoms of cerebellar disease arranged according to their frequency in this series of cases would be headache, vomiting, optic neuritis, vertigo, ataxia, asthenia, occipital pain and tenderness, inclination to turn toward the side of lesion, convulsions, and such secondary symptoms as nuclear paralyses, polyuria and glycosuria, tremors, and sudden death. The negative symptoms would comprise the disorders of the sexual desire, of the mind, of sensation, and the variability of the tendon reflexes. (From Dr. W. C. Krauss' paper in the New York Medical Journal, June 1, 1895, p. 673.)

CEREBRAL HEMORRHAGE IN HEMORRHAGIC PURPURA.

Dr. Newgarden, of the United States army, records in a recent number of the Philadelphia *Medical News* the case of a Swede, aged 38, who first sought advice on account of persistent oozing of blood from the cavity from which the second right upper molar had been removed on the previous day. Under appropriate treatment the bleeding ceased, and there was no recurrence in a few days during which he was kept under observation. A few weeks later, however, he again sought advice on account of weakness in the legs, and he stated that there were some spots on the skin. Examination revealed the existence of a number of large purpuric spots scattered over the legs from the ankles to the middle of the thighs. They underwent the usual changes and were rapidly disappearing when he one day complained of severe headache, became convulsed, lost the use of the left side, and passed into a comatose condition. Consciousness returned in an hour, but he soon lapsed into his former condition, and died four days after the initial headache and convulsion. During the few days that elapsed before his death there was incontinence and hæmaturia. At the necropsy it was found that the left ventricle was greatly dilated, with vegetations on both aortic and mitral valves, the latter being bound down by adhesions. The right ventricle was dilated, and the kidneys granular and cystic. A large hemorrhagic extravasation was found over the right cerebral hemisphere, and there was also a clot in the middle lobe from rupture of a

branch of the middle cerebral artery. The case is a curious one, and it might be suggested that the symptoms were the result of a cardiac and vascular conditions secondary to granular kidney, and not of the real but mysterious disease known as purpura hemorrhagica. (The Lancet, July 13, 1895, p. 111.)

CHOREA AS A FATAL DISEASE.

Barber (*Brooklyn Medical Journal*, February, 1895). This disease is not considered by the mass of practitioners as one needing especial attention, and few authorities consider it of sufficient gravity to even suggest that a case might end fatally. The British Medical Association computed the deaths at about two per cent. The author's first fatal case was that of a six-year-old boy. He had been ill for two weeks, and twitchings were first noticed about the mouth, the spasmodic movements gradually increasing, until the whole body became more or less involved. A physician had advised that he be urged to move about, and in consequence he showed scars and bruises due to falls. The spasmodic movements became excessive, he only was able with great effort to converse, and could not masticate any kind of food. Only liquid nourishment in very small quantities was taken, as the interval between the spasmodic seizures was brief. After a few days of uninterrupted distress he succumbed to the disease. Autopsy revealed nothing characteristic in any of the viscera or nervous structures. There was no history of rheumatism, and the patient had been well until attacked by this disease. He died from asthenia. The second case was that of a man 18 years old. His first attack came on two days after being thrown from a wagon. After a few weeks' hospital treatment he recovered. The second seizure came on just after being admitted to bail, the patient having been arrested and locked up for lounging. Involuntary movements appeared and grew very severe, so that it required the attention of three men to hold him in bed. The mind was clear, and during sleep the movements ceased. He died from the same cause as the first case after five days. No post-mortem examination was allowed. (Dr. Freeman, Journal of Nervous and Mental Disease, April, 1895, p. 237.)

CHOREA.—The use of Electricity in.

In the light of my own personal experience in the treatment of chorea, the opinion expressed more than a quarter of a century ago by a distinguished physician is of much interest. "Electricity," he says, "is another agent which requires a passing mention in this place, though all that can be said respecting it is, that as yet there appears to be little or no reason for placing any confidence in it as a means of treatment.

Whether this will always be the case—whether there are not modes of using electricity which will have the effect of quieting choreic and analogous movements—remains to be seen. I suspect that there are such modes, and that they will be beneficial, but I have not yet the facts to justify the expression of a belief on the subject." Electricity benefits chorea on the same principle that it benefits neurasthenia or hysteria and many other functional nervous diseases, because of that indirect improvement in nervous force which is a part and a result of the general improvement in nutrition. While electricity is neither life nor nerve-force, it aids in sustaining both life and nerve-force, as do light and heat; not by direct transformation, but indirectly through its influence over nutrition. This influence over nutrition, together with musculo-sedative effects, are brought about in greater or less degree by various methods of electrisation, by general faradisation, especially with the high-tension coil, central galvanization, static electrification, and even by peripheral galvanization. To obtain temporary musculo-sedative effects there is no method that equals the depolarising method of central and peripheral galvanization, by which is meant the elimination of either one or the other pole. In this way the neutral point is thrown outside the body, and the part or parts brought under the influence of either the negative or positive pole alone, as desired. Static electricity (positive) is also sometimes useful in chorea in calming nervous excitement, and as an aid to nutrition. But the two methods that I have found, on the whole, to be the most effective in the treatment of chorea, are central galvanization and general faradisation. These two methods properly differentiated and used, either alone or in alternation according to the indications in each individual case, are capable of doing much not only in alleviating the violence of the choreic movement,s but in shortening the duration of the disease. (From Dr. A. D. Rockwell's paper in the Medical Record, August 3, 1895, p. 148.)

EPILEPSY.—Treatment by Borax.

Féré (*Rev. de Méd.*, September, 1895) reports the results of the treatment of 122 cases of epilepsy by borax. The drug was given in large doses (2 g., rising gradually to as much as 20 g. a day), and in some cases for many months. In about two-thirds of the cases (71·31 per cent.) the treatment has no effect. In about a fifth (19·67 per cent.) some doubtful or temporary improvement was noticed, less than the benefit derived from bromides. In the remainder (9·01 per cent.) the improvement was marked, though the duration of the observations was too short to permit it to be stated that the improvement was permanent. The great drawback to the use of the drug is the

frequency with which its continued use in large doses produces toxic symptoms. To this subject Féré devotes the greater part of his paper. The earliest as well as the most frequent symptoms are due to derangement of the alimentary tract. Nausea and vomiting, preceded as a rule for a few days by loss of appetite, and heaviness and burning in the pit of the stomach. In some cases these symptoms may be diminished or removed by administering intestinal antiseptics, or by giving the borax dissolved in glycerine instead of water. Extreme dryness of the skin, with suppression of the fatty secretion, as well as dryness of the mucous membranes, may also be produced by the large doses of borax requisite in the treatment of epilepsy. The hair also is affected; it becomes dry, and may fall out, producing complete baldness. Various lesions of the skin may be produced by borax, among others (1) psoriasis in persons predisposed to that affection. The most common affection is a form of (2) eczema resembling seborrhœic eczema. The affection begins as papules or circles with red squamous borders, which first appear generally on the lower part of the trunk or abdomen and on the upper limbs, in, that is to say, parts of the body where the sebaceous secretion is most scanty. Fine branny desquamation of the hairy scalp with or without loss of hair may accompany the appearance of a form of the skin affection to which the term seborrhœic acne is applied. These skin affections disappear when the administration of borax is suspended, and may be kept under during its use by giving intestinal antiseptics or by resort to local treatment by oxide of zinc, sulphur, or salicylic acid. Other less common affections of the skin are (3) the appearance of red plaques which may be confluent and very extensive, may present resemblances to the rash of measles or scarlet fever, and may be followed by desquamation. (4) A papular eruption accompanied by pruritus, and followed sometimes by desquamation. The continued administration of borax produces in some cases a cachectic state, characterised by wasting, a waxy tint of the skin, discolouration of the mucous membranes, puffiness of the face, and sometimes general œdema. In a certain proportion of the cases of œdema there is albuminuria, and in such cases uræmia may develop with great rapidity. Borax appears in the urine in health half an hour after ingestion, and may continue to be excreted by the kidneys for weeks after the suspension of the treatment. On the whole Féré concludes that borax is more efficacious than the bromides in a small proportion of cases of epilepsy, and that therefore it should be tried when the bromides fail. It must be regarded, however, as a dangerous remedy owing to its power of producing or aggravating lesions of the kidneys even when given in small doses. (British Medical Journal Epitome, October 12, 1895, par. 294.)

EPILEPSY.—Treatment of.

By Moeli (*Therapeutische Monatshefte*, September, 1894). In patients in whom the course of the epilepsy is not benefited by the use of bromides the author has used atropine for the past three years. The number of cases in which he has used it is 37, of which four were excluded as not being cases of genuine epilepsy. The dose of atropine, $\frac{1}{120}$ of a grain twice a day, is kept up for a period of from seven to eight weeks. During the administration of the atropine the bromides are continued. In about a third of the cases the beneficial effects of the combined therapy could be seen both in the decrease of the number of the attacks and a lessening of their severity. In two men and three women the attacks were stopped for several weeks, although previous to that time a much larger daily quantity of bromide had not succeeded in causing so good a result. (Dr. J. Collins, Journal of Nervous and Mental Diseases, April, 1895, p. 257.)

FLECHSIG'S TREATMENT.

In a discussion before the New York Academy of Medicine on the Flechsig method in the treatment of Insane Epileptics, Dr. Frederick Peterson stated that he had tried the Flechsig method of treating epilepsy with opium and bromides in a large number of cases since the publication of the new treatment by its author. In cases which resisted ordinary methods, in the obstinate chronic cases with frequent attacks where nothing seemed to avail, it often produced very beneficial results. It is a means which should only be resorted to, he believed, in this particular class of epileptics. Certain cases which he had observed had presented some of the mental symptoms characteristic to the disease, and in these the opium-bromide treatment had on several occasions proved surprisingly useful. In some private patients he had employed codeine in the place of opium with success. He had less fear of inducing the opium habit when codeine was used, though with due caution opium could be given without any particular danger. (Medical Record, August 10, 1895, p. 207.)

GOITRE, EXOPHTHALMIC.—Incomplete or Atypical cases.

In many cases of exophthalmic goitre one or more of the prominent, primary, or fundamental symptoms may be wanting. It is these imperfect, rudimentary, or, as they are termed by French writers, "fruste" cases [*fruste* (used in relation to medals and coins)=defaced], which are apt to be overlooked or give rise to an incorrect diagnosis; and, as it is these cases which are most amenable to treatment, it is necessary that

they should be recognised early. The most constant symptom is persistent increased frequency and irritability of the heart's action, in fact some (Germain Sée, &c.) go so far as to say that without an increase in the pulse-rate this disorder can not be present ; others, however, quote cases in which it was absent : Eulenberg, in Ziemssen's "Cyclopædia of Medicine," mentions five cases. Three out of 58 collected by von Dusch ; a case of Leube's in which the pulse-rate only once reached 82 ; a case of Chisholm's in which it was 85, whilst there was no palpitation at all. In one case, which was under observation for ten weeks, the pulse-rate never exceeded 92. Several other instances have been recorded. The enlargement of the thyroid and prominence of the eyes may either or both be imperceptible, and yet the presence of over-action of the heart, increased pulsation in the cervical vessels, general nervousness, tremor, flushings, sensations of heat and perhaps attacks of diarrhœa, &c., leave no doubt as to the diagnosis. Exophthalmos was absent in two cases ; but some enlargement of the thyroid was present in all. Tremor appears to be a fairly constant symptom, and is usually present when the irritable action of the heart is at all marked. "General nervousness" is considered by Byrom Bramwell to rank with palpitation and tachycardia as one of the most constant symptoms. (From Dr. W. W. Stoney's Thesis for the M.D. degree of Victoria University, 1895, p. 29.)

GUMMA.—An Intercranial.

Dr. C. E. Nammack showed in the New York Neurological Society, a woman, 24 years of age, whom he had first seen two weeks before. For the preceding five months she had had constant headache, with vertigo and vomiting in the early morning. This had been followed by gradual loss of power in the right hand. Two months ago she had found that she was unable to close the left eye. There had been no injury or emotional shock, and there was no history of alcoholism or of venereal disease of any kind. She answered questions slowly, and it was difficult to keep her attention concentrated on any one subject. There was optic neuritis on each side, with beginning choked disc in the left eye. R. V. was $\frac{}{20}$, and L. V. $\frac{20}{70}$, not improved by glasses. The tongue was furred on the left side only, and taste was diminished on this side. The diagnosis was that of an intracranial gumma situated in the lower part of the pons on the left side. For the past two weeks she had received inunctions of blue ointment and 60 grains of iodide of potassium three times a day, and already the improvement was remarkable.

Dr. B. Sachs said that it was well to be cautious about making a diagnosis of gumma in a case of this sort solely on

the strength of the improvement observed from such treatment. For example, he had seen a man of 45 years who had had a hemiplegic attack some years before, and in whom the administration of a large quantity of iodide of potassium had caused the entire disappearance of all the symptoms for several months. Subsequently this man had had a fatal apoplectic seizure, and the post-mortem had shown a very large glioma. In connection with every neoplasm there was a large amount of exudation, and absorption of this fluid might be responsible for the improvement following the treatment.

Dr. Starr said that, if he remembered correctly, Dr. Nammack had himself recently reported a similar case to the society. Within ten days he had seen a boy of 16 suffering from all the symptoms of well-marked tumour of the cerebellum. When this boy was eight years of age, he had suddenly been seized with symptoms of tumour of the cerebellum, and had been treated for such a tumour by Dr. Seguin. Within two months after the beginning of the antisyphilitic treatment the symptoms had entirely subsided, and the boy had been apparently perfectly well up to six weeks ago, when the eye symptoms had returned. Examination had shown the typical choked disc. Although this boy had not had syphilis, and the family history was exceptionally clear on this point, yet antisyphilitic treatment had caused the disappearance of the symptoms of tumour.

Dr. J. F. Terriberry remarked that one could get no idea of the degree of choked disc from the impairment of vision. (New York Medical Journal, May 25, 1895, p. 665.)

HEMORRHAGE, MIDDLE MENINGEAL.

In the consideration of the collected cases the following are some of the points which have struck me as worth bearing in mind apart from the classical symptoms :—Paralysis may occur without preceding convulsions. The interval of consciousness may be wanting. Rigidity may appear without preceding clonic convulsions. Bilateral rigidity does not necessarily point to hemorrhage at the base, nor even to a bilateral hemorrhage at the cortex, but may result from extensive unilateral middle meningeal hemorrhage. In the latter case the onset will be, however, unilateral. The prognosis of aphasia, as well as of hemiplegia, resulting from cortical hemorrhage, is generally good, if the effused blood be removed by operation, even though considerable laceration has taken place. Three months is the longest interval on record between the time of receiving the injury alleged to be the cause of the hemorrhage and the onset of symptoms resulting from hemorrhage. (I have recently seen a case with Dr. Richardson, in which five weeks of apparent health intervened, followed by coma.) Anæsthesia may result

from cortical hemorrhage, but far less frequently and less marked than motor paralysis. Stertorous respiration, though a serious symptom, does not contra-indicate operation. Coma does not contra-indicate operation. The pupils may remain unaffected. In the exceptional event that one arm be paralysed and the other convulsed or rigid, other symptoms must be depended on for the location of the hemorrhage. In case the injury is on one side, and the symptoms on the same side, operate on the side indicated by the symptoms, rather than at the site of the blow. Symptoms of fracture of the base added to those of meningeal hemorrhage render the prognosis unfavourable. Tonic rigidity may appear in parts previously paralysed as regards voluntary motion. If symptoms of hemorrhage are present and operation is undertaken at all, exploration should be thorough, certainly sufficient to expose the posterior branch of the middle meningeal artery. Diagnosis of the side of lesion may be made from paralysis of the third nerve alone, if general symptoms of hemorrhage are present. In case of bilateral convulsion a dilated and fixed pupil alone may indicate the side of hemorrhage. Deviation of the eyes and head, though important in corroboration, affords little help as a localising symptom. (From Dr. Walton's paper in the American Journal of the Medical Science, April, 1895, p. 401.)

IDIOCY.—Operative Treatment of.

Dr. Shuttleworth read a paper before the British Medical Association on this subject, in which he expressed a strong opinion against operative measures being undertaken in cases of microcephaly. The premature synapsis he regarded not as a cause of the brain defect, but as an associated defect or perversion of development. In certain cases of local epilepsy and in some cases of hydrocephalus operation might be indicated, and it might also be justifiable in certain cases of congenital syphilitic brain disease.

Dr. Fletcher Beach expressed agreement with Dr. Shuttleworth's view that craniectomy is useless for the relief of microcephalic idiotcy. He thought, however, it might be useful in some traumatic cases and in cases of hydrocephalus and hypertrophy of the brain.

Dr. Telford Smith referred in a few words to one of the cases related by Dr. Shuttleworth. In this case no less than five operations on the skull had been performed by Professor Horsley. The patient was now less restless and more obedient, but an undoubted idiot, and what improvement was manifested was not more than would be expected as a result solely of the educational treatment that has been employed. (The Lancet, August 10, 1895, p. 365.)

INFANTILE PARALYSIS.—Morbid Anatomy of.

In the recently published number of *Brain* a full description is given by Dr. Trevelyan of the condition of the different structures of the spinal cord in a case of this disease, in which death occurred from independent causes eleven months after the onset of the paralysis. The patient was a girl six years of age who was suddenly seized with fever, nausea, and vomiting. Paralysis was observed on the second day and involved all four extremities. The sphincters were also affected at first. The arms began to recover three weeks after the onset of the attack, and the ultimate condition was one of almost complete paraplegia affecting the lower limbs, while the right arm also was weak. The knee-jerks were absent and there was a loss of faradaic reaction in the affected muscles, but little, if any, wasting. The condition of the spinal cord was especially observed. The ganglion cells were very much altered. The processes had disappeared and the cells themselves had become more or less formless masses. The nucleus and nucleolus seemed often to persist after the body of the cell had disappeared. Groups of minute but perfectly formed ganglion cells were seen here and there, chiefly in the parts corresponding to the lateral horns. The nerve fibrils were very much changed in the grey matter. Often they had entirely disappeared ; where present they were mostly reduced to fine lines and they were frequently distinctly varicose. The fibres in the anterior roots as they passed through the white matter seemed to be fewer in number and thinner than normal. In only a few specimens did they seem to be degenerated. There were overgrowth and infiltration of the neuroglia, and in many parts of the grey matter of the cervical and lumbar enlargements translucent areas were visible, the result of destruction of nerve fibrils and ganglion cells, and with a higher power enormous spider cells were visible in these translucent patches. The central canal was pervious throughout the cord. In many parts of the cord a greatly increased vascularity was evident, and advanced perivascular changes could be made out, often in the areas in which the central and peripheral vessels met. No distinct disease of the walls of vessels was made out. There was considerable cell infiltration in most parts of the cord. This was most distinct in the mid-cervical region. This cell infiltration was of two kinds, general and patchy, the patchy infiltration being frequently perivascular. The cells in this infiltration were also of two kinds, round and with processes ; and there was a third kind of infiltration of large irregular cells without distinct processes in the area around the central canal and apparently derived from the cells lining the canal. The changes in the white matter were similar in kind but of much less intensity, and these changes extended throughout the whole length of the

cord. From the study of this case—a case observed pathologically at an extremely interesting period, viz., after the intensely acute processes had subsided and before the cicatricial condition was established—Dr. Trevelyan is inclined to support the view identified chiefly with the names of Siemerling and Goldscheider, that this disease is of vascular and interstitial origin—*i.e.*, that the changes in the ganglion cells are secondary to the changes in the vessels and interstitial tissue. As regards the ultimate origin of this disease, although no proof has yet been offered, there are strong reasons for supposing it to be infective. (The Lancet, October 12, 1895, p. 930.)

INSOMNIA DUE TO TOBACCO.

Men who work late are commonly addicted to the tobacco habit. To them tobacco is not a relaxation after a day's work, but a nerve stimulant which enables them to accomplish tasks which would otherwise be difficult of accomplishment. Not unfrequently, too, when the mouth becomes parched as the result of continuous smoking, recourse is had to alcohol in some form or another to give a further fillip while enabling him to tolerate still another cigar or two. Under these circumstances tobacco acts as a cerebral irritant, and interferes with the vaso-motor centres of the brain to such an extent that the vessels are unable to adjust themselves forthwith to the condition required for healthy and untroubled sleep. Every smoker is familiar with the fact that a change of tobacco or an unusually strong cigar is apt to keep one awake at night, and this tendency is accentuated when smoking is an aid to work and not a mere pastime. The same remark applied to alcohol when it is used as a stimulant. The real cause is often overlooked, and drugs are employed where a change of habit ought to be insisted upon. Attention to the ordinary rules of "tobacco hygiene" would save many from this distressing condition of chronic insomnia. Smoking early in the day should be discountenanced, and it is equally undesirable within an hour or so of retiring to rest. The best remedy for the tobacco habit, short of total abstention, is to take a short walk in the open air after the last pipe. Under no circumstances should drugs be recommended for this form of nocturnal restlessness. (Medical Press and Circular, August 7, 1895, p. 137.)

INSOMNIA.—The Warm Bath in.

The following is taken from an abstract of a paper on the treatment of insomnia, contributed to the Maryland Medical Journal, Feb. 23, 1895, by Brush. The warm bath has advantages which few who have not systematically tried it appreciate. It may be made at once a stimulant to the circulation and then a sedative.

Some seven years ago, A. Symon Eccles, M.B. (*Practitioner*, March, 1888) showed that the administration of a bath for the purpose of inducing sleep was not as simple a matter as it seemed. The bath should be administered in a room whose temperature is 65° to 70° F. The patient is made to stand with his head over the edge of the tub, and his head and face are then rapidly douched with water at 100° F. The cooling of the body by the air and the hot sponging of the head sends the blood to the head, dilating the vessels of the entire brain. The entire body is then immersed, except, of course, the head, in a bath at 98° F., which is rapidly raised to a temperature of 105° to 110° F. In a few minutes the patient is taken from the bath, wrapped in warm blankets, and, without exertion, on his part, taken to his room. The blankets absorb the moisture ; in his room his night-clothes are put on, a warm bottle placed at his feet, and possibly some warm liquid food administered. The sedative and refreshing result is often most marked. Some patients cannot be subjected to this method, for one reason or another. For these, massage, sponging of the body, followed by hot sponging for from three to five minutes from the vertex to the tip of the spine, and subsequently brisk friction with Turkish towelling of a portion of the body at a time until the whole body has been gone over, will be found a fairly efficient substitute. The hot pack to the abdomen, preceded by friction of the limbs and kneading of the abdominal walls, will, in certain cases, be of great service. In all of these cases the administration of hot milk, oatmeal gruel, or the animal broths will be an efficient adjuvant. (Abstract in Therapeutic Gazette, June 15, 1895.)

KNEE-JERK IN DIAGNOSIS.

(1) Loss of the knee-jerk associated with severe, sharp, circumscribed, paroxysmal pains in the lower extremities; incontinence or slowness in emptying the bladder, with preservation of muscular resistance, with or without inco-ordination, with or without objective sensory symptoms, is indicative of organic changes in the lumbar segments of the cord, such as tabetic degeneration or a lesion of their posterior nerve roots. (2) Loss of the knee-jerk associated with diminished muscular resistance or evident paresis or paralysis in the lower extremities, pain in the course of nerve trunks with tenderness on pressure, some atrophy and quantitative decrease in faradaic irritability, with or without objective sensory disturbances, and the absence of bladder symptoms, is a clinical picture of multiple neuritis. (3) Loss of the knee-jerk with flaccid paralysis, atrophy, and loss of faradaic reaction in the quadriceps, and the absence of all sensory symptoms, indicates a poliomyelitis in the lumbar

portion of the cord upon the same side. Primary or secondary degeneration affecting the lateral columns of the cord (spinal portion of the upper segment of the motor track) is usually attended by exaggeration of the knee-jerk upon the same side as the lesion. In some cases of hemiplegia resulting from hemorrhage in the internal capsule I have found the knee-jerk exaggerated (and ankle-clonus) on the third or fourth day. This is too soon for the development of a secondary descending degeneration, but is more likely due to a cutting off of the inhibitory fibres. In the early stage of paretic dementia, owing to the pathological changes in the cortex, the knee-jerk is often found markedly exaggerated, save in those cases where the posterior columns of the cord have been primarily involved. Then the knee-jerk may be lost. As the knee-jerks are often found pronounced or excessive in neurasthenia, hysteria, and alcoholism, or from mental fatigue, we must admit that in many instances the interpretation of such a symptom is more difficult than when the knee-jerks are absent. This is particularly the case when the over-activity is bilateral and uniform in character. A unilateral exaggeration of the knee-jerk is often of considerable pathological significance, and is usually associated with other objective symptoms, such as diminished muscular resistance, paresis, or rigidity. (New York Medical Journal, June 29, 1895, p. 801.)

MENINGITIS.—A Constant Sign in Commencing.

This consists in the inharmonious movements of the chest and diaphragm. It exists from the beginning, and may serve to reveal its cause even in insidious cases, but requires careful searching. The chest and abdomen must be bared, but not suddenly, or the hyperæsthetic skin will take on accidental movements from the action of the air. In the first period of meningitis may be seen irregularity of rhythm and inequality of the amplitude or development of the chest. Another sign is the irregular type of respiration and dissonation of the movements of chest and diaphragm. The respiration is effected by the lower respiratory muscles of the chest. Looking at the umbilical region, instead of the normal elevation with each inspiration, there is either immobility or depression. These movements are not connected with the Cheyne-Stokes type of respiration.—*Times and Register.* (The Medical Age, June 29, 1895, p. 384.)

MENINGITIS, HOT BATH IN CEREBRO-SPINAL.

The patient, 25 years old, at the end of the third week's illness exhibited benumbed sensorium, constant delirium, and persistent opisthotonos. The fever had subsided, but the pulse remained rapid. Reasoning from previous experiences, the prognosis was

considered unfavourable. After the somnolence had lasted ten days, it was decided, on account of the low temperature and frequent and small pulse, to employ hot bath. He received during three days twelve baths in all, at 104° F., each of ten minutes' duration, and even after the first bath striking improvement was observed. Gradually the sensorium cleared up, pain and opisthotonos diminished, incontinence of urine and fæces disappeared, the abducens nerve assumed its normal function, and the power of speech returned. Upon discontinuing the treatment, nocturnal headache and delirium reappeared, whereupon three more baths were given, after which all symptoms of disease vanished. I report this to encourage the further trial of hot water.—Aurecht, in *Die der Gegenwart.* (The Medical Age, May 10, 1895, p. 285.)

MENINGITIS, TUBERCULOUS, with recovery.

(Freyhan-Deut. Med. Woch.) Existing opinions in general are against the possibility of recovery from tubercular meningitis since the brain is only in rare cases the sole point of infection, but a general miliary tuberculosis, as a rule, exists. So much the more interesting is the observation at the city hospital at Friedrichshain in Berlin of an instance of recovery, in which the tuberculous nature of the process was most infallibly shown. The diagnosis was proved by puncture of the spinal canal at the level of the second lumbar vertebra and by drawing 60 c.c. slightly turbid, light-coloured serum, in the sediment of which was found a scanty number of pus corpuscles and undoubted, deep-red, tubercle bacilli, arranged like strings of pearls, whose presence was further assured by numerous control preparations. After the puncture the patient recovered so quickly and uninterruptedly that after three weeks without fever he was able to leave his bed. This case is also instructive with regard to the differential diagnosis between tubercular and cerebro-spinal meningitis. The recovery of a case in which opinion has wavered between these two affections, usually tends to strengthen the diagnosis of cerebro-spinal meningitis. The result of a puncture in connection with the microscropic and bacteriologic investigations is destined to clear the point. Entirely aside from the therapeutic value of this method, it is certain we possess in it a diagnostic resource of the first rank in the differential diagnosis between tubercular and cerebro-spinal meningitis.—*Centralblatt für innere Medicin.* (The Journal of the American Medical Association, May 18, 1895, p. 767.)

NERVE TRUNKS.—Treatment of Injuries of.

Prof. Millard in a lecture on "Injuries of Nerve Trunks" thus describes the treatment. In the management of injuries to nerve-trunks we must combat the symptoms as they arise. The

pain immediately following concussions and compressions rapidly subsides under the use of mild hypnotics. If the case is one of partial laceration or contusion of a trunk, more or less neuritis will result, not infrequently attended with intractable pain. In this class of injuries you must guard against the too frequent administration of anodynes, as the disposition to acquire dangerous habits is most menacing. Where a greater or less solution of the continuity has taken place, rest of the injured nerve is imperative. This is best obtained by means of an immovable apparatus. Overcome any inflammatory phenomena by resolvents and antiphlogistics. If you have reason to fear a foreign body impinging upon the nerve, it must be removed at once. If the trunk is divided, as so frequently occurs in incised and gunshot wounds, an immediate operation is imperative, The divided ends should be sought for at once, secured, freshly trimmed, and united by suture. Rest is imperative following nerve-suture. The operation of suturing may be performed with success at remote periods following the primary injury. If the causalgic symptoms are most persistent in cases of contusion or laceration with incomplete solution of the two ends, neurotomy is frequently followed by immediate improvement. Our object in combating the secondary symptoms should be to limit sensory and motor paralysis with the accompanying degeneration. The anæsthesia is best combated by electrization without moisture. Threatened muscular atrophy and loss of contractility call for the induced current; later on regeneration is assisted by the interrupted current and massage. Persistent muscular contractions may demand prosthetic apparatus and straightening by tenotomy. (International Clinics, Third Series, Vol. 2, p. 157).

NEURALGIA.—Water in the Treatment of.

Dr. Buxbaum first called the attention of the profession to this mode of treating neuralgia. He thinks that the hydrotherapeutic treatment of this disease has hardly received the attention which it deserves. In neuralgia of rheumatic origin it acts by inducing increased blood-supply to the affected parts, and in the neuralgias following upon the infective diseases or due to intoxication by mercury or lead, it promotes the elimination of the poison. He reports that in 83 typical cases of neuralgia this treatment was unsuccessful only in 10 per cent., whereas 60 per cent. were cured, and the remainder considerably relieved. The alternate application of heat and cold is most to be recommended. The patient is exposed to high temperatures, and afterwards cold applications are made. The alternating Scotch douche is particularly of service. Recent neuralgias may often be cut short in this way. Patients with sciatica treated without effect by

various therapeutic measures, even including nerve stretching, have been cured in a short time by this method. If the neuralgia persists it is nearly always due to some irremediable cause, with the exception of some few cases open to operation. If a remission occurs after the treatment has begun, it shows the neuralgia is curable, and is therefore of prognostic value. In trigeminal neuralgia hydrotherapeutic measures applied to the whole body are the most suitable. Of course other indications should be attended to, such as anæmia, malaria, &c. (Charlotte Medical Journal, March, 1895, p. 1029).

NEURASTHENIA AND ITS TREATMENT.

By Dr. A. Sallard (*Revue de Thérapeutique*, February 15 and March 1, 1895).—Written with the object of propagating the general principles in the treatment of neurasthenia, the author commences by referring to the inconstancy and variability of the symptoms. He considers the chief symptoms to be:—Sensation of weight in the head; constriction at nape of neck; pain in the back, with tender points; mental depression; muscular weakness; and dyspepsia. From his experience he divides cases into five clinical classes, viz., neurasthenia, especially connected with cerebral, spinal, alimentary, cardiac or genital systems. The author then refers to the difficulty in diagnosis, and to the fact that the condition of neurasthenia may pass into other grave diseases. With respect to treatment, the first object is to inspire confidence in the patient. Cure by hypnotic suggestion has been tried, but answers only in a very limited number. The general hygienic conditions are most important; but rules must be always varied for individual cases, for, while exercise usually suits cerebral neurasthenia, rest is found beneficial in the spinal form. Hydrotherapy is thought by the author to be often of value, though some think it may do harm; and, at any rate, it must be used with discretion. Electrotherapeutics are strongly recommended by M. Vigouroux; for this static electricity is employed in various forms. M. Vigouroux has, moreover, found changes in the urine of neurasthenic patients, which he believes to some extent are characteristic. They are:—(1) Increased acidity (often due to excess of lactic acid); (2) diminution of excremental products (urea, uric and phosphoric acids); (3) increase of incompletely oxidised products (lactic acid, leucomaines, &c.); and these changes influence M. Vigouroux in his selection of suitable diets. For severe cases isolation is necessary. The author also touches on the prophylaxis of neurasthenia, recommending for the children of neurasthenic patients healthy surroundings and careful consideration as to the choice of their profession; he also condemns consanguineous marriages. (The Practitioner, June, 1895, p. 558.)

NEURITIS DURING AND AFTER TYPHOID FEVER.

Dr. William Osler gave before the Philadelphia Neurological Society an account of the cases which had been under his observation since the opening of the Johns Hopkins Hospital: 5 cases of local neuritis; 4 instances of general peripheral neuritis involving arms and legs. Of the cases of local neuritis 4 occurred among about 350 cases of typhoid under treatment, and 1 was a dispensary case. He described first the condition which has been referred to as "tender toes" in typhoid fever, which was possibly also a peripheral neuritis. In 2 of the cases the local neuritis developed at the height of the fever; in 3, after the temperature had become normal. He spoke of the difficulty of diagnosis between some of these cases of localised peripheral neuritis after typhoid and poliomyelitis. Of the 4 cases of multiple neuritis none were under treatment in the hospital during the primary illness. All 4 were in males: 1 a boy of 9, 1 a boy of 10, and the other 2 in young adults; 1 case presented a very marked relapsing feature. In these 4 cases there was double wrist and foot drop, with atrophy; in all of the cases there was marked pain in muscles. There was no trophic disturbances, no involvement of the bladder or rectum. Two of the cases which were under observation in 1893 have recovered completely. The 2 cases which were under observation in the autumn of 1894 have improved very much, particularly in the arms, but still have foot drop and the steppage gait. (Journal of Nervous and Mental Diseases, May, 1895, p. 327.)

NEUROSIS AND HYSTERIA.

In asthenic neurosis the history is usually traceable to an early period of life, while hysteria usually commences with puberty, or before and after confinements. The etiology of neurasthenia has been suggested as hereditary from the early appearance of the disease, but this is not confirmed by clinical experience. If the cases be closely scrutinised some initial point, as self-abuse or other similar cause, may be elicited in the inquiry. The diagnosis of neurasthenia from hysteria is particularly useful in the prognosis of a case which often rewards patient inquiry. Adopting the older classification of "neurosis" in its widest sense, hysteria may be placed first in the series, neurasthenia, in its narrowest sense, next, "Zwangsneurose," or volitional neurosis, third, whilst the fourth will comprehend the sensory and erotic phenomena. Westhal defined neurasthenia as a degenerative change in the volitional apparatus, but we have other testimony where volitional phenomena are absent in the neurasthenic. The usual symptoms of this disease are lassitude,

defects in the nerve functions, dyspepsia, spastic constipation, headache, and pain in the spine. Other irregular symptoms are to be met with, but in all a dread or anxious fear is usually present. Irregularity of the heart, sleeplessness, convulsions, dyspnœa, excessive hunger, and pressure in the head are not uncommonly met with. This constant dread closely connects neurasthenia with hypochondriasis, but the name is somewhat repellant. (Dr. S. Freund, reported in the Medical Press and Circular, October 30, 1895, p. 450.)

RAILWAY SPINE.

Dr. F. X. Dercum read a paper before the American Neurological Association on this subject. He reported 2 cases with autopsies. In the first case there had been excessive sprain of the muscles of the back and of the trunk generally, with marked spasm of the muscles and tremor, together with increased reflex excitability of the muscles and tendons. In addition, the symptoms so commonly observed in traumatic neurasthenia had been typical namely, disturbed sleep, startling dreams, sudden awakening with fright, excessive sweating, frequent micturition, occipital headace, tinnitus aurium, marked general weakness, &c. The patient had died from some intercurrent disease. Careful examination of the nervous system had shown no demonstrable lesion. In the second case there had been severe traumatic left brachial neuritis and left brachial monoplegia, with atrophy of the muscles about the left shoulder, severe sprain of the muscles of the back, right hemi-analgesia extending from the foot up to the level of the nipple, and right hemi-thermo-anæsthesia extending from the foot up to the level of the false ribs. The man had been exceedingly weak physically, but mentally he had seemed clear, and had accepted his situation in a philosophical spirit. He had died suddenly from the rupture of an aortic aneurysm. The post-mortem examination of the nervous system had proved negative. (New York Medical Journal, July 6, 1895, p. 25.)

STATUS EPILEPTICUS.

The following case of epilepsy, in which the patient recovered after having had an extraordinary number of convulsions, may be considered of interest. It occurred in a woman 26 years of age, who was admitted to Rainhill Asylum on January 4, 1890, suffering from mania with epilepsy. From the date of her admission till the end of December, 1894, she had on an average four fits per month; one to two days intervened, as a rule, between each, and at no time were more than five fits recorded in 24 hours. After each group of fits she became excited, the excitement frequently assuming the form of post-epileptic mania

of a violent type. Bromide of potassium was taken by the patient in 30 grain doses twice daily from the middle of May, 1891, till the middle of December, 1894. The series of convulsions which forms the subject of this communication began on January 2 of this year, a fortnight after the bromide of potassium was discontinued, and ended twenty-one days later. The aggregate number of fits recorded during these twenty-one days amounted to 3,205, the daily total reading as follows :—

January	2	..	16	January	9	..	159	January	16	..	96
,,	3	..	38	,,	10	..	51	,,	17	..	123
,,	4	..	280	,,	11	..	112	,,	18	..	133
,,	5	..	330	,,	12	..	98	,,	19	..	286
,,	6	..	285	,,	13	..	165	,,	20	..	168
,,	7	..	211	,,	14	..	151	,,	21	..	87
,,	8	..	321	,,	15	..	89	,,	22	..	3

The convulsions were almost entirely confined to the right side of the body, beginning in the arm and spreading rapidly to the head, face, and leg. The arm was flexed, the leg drawn up, and the head and eyes rotated to the right ; occasionally the left leg was involved, and more rarely the left arm also. During the paroxysm urine was passed, but not fæces, nor was the tongue bitten. Each fit was a distinct entity, well marked and severe, but of short duration, generally lasting from about thirty to forty seconds, and separated from that immediately preceding and succeeding it by a period of semi or complete consciousness. There can be little doubt that the patient's recovery may be attributed to the fact that these periods existed and were taken advantage of to give her a sufficiency of nourishment. As to treatment, a brisk purge was administered at the outset, and 111 grains of chloral hydrate were given in the first twenty-four hours, followed during the second twenty-four hours by 105 grains of the same drug. Afterwards 10 grains of bromide of potassium and 10 grains of chloral hydrate were given every three hours till January 17, when the amount of each drug was increasad to 30 grains every four hours at first, and less frequently as the fits decreased in number and severity. After the final cessation of the convulsions the right arm and leg remained completely paralysed for a fortnight ; then the paralysis gradually passed of. At this time, the patient's mental activity having returned, an examination into the state of her nervous system was made. She complained of great pain in the right shoulder, which was purely due to passive or active movement ; there was no hyperæsthesia ; sensibility to pain and touch remained unimpaired ; the motor speech mechanism was unaffected ; ophthalmoscopic examination revealed no morbid change ; there was slight wasting of the right arm and leg, and the tendon reflexes were brisk, that of the right patella more so than the left. Concerning the further

course of the illness, the paralysis has now (April, 1895) completely disappeared, some slight stiffness of the shoulder alone remains, and no more fits have been recorded. (The Lancet, August 31, 1895, p. 526.)

YPHILIS, CEREBRAL.—Treatment of.

The treatment of cerebral syphilis is never really satisfactory, and one can never be certain whether the administration of specific remedies will be attended with success or not. Bruni has recorded an interesting case, which he considers as one of undoubted cerebral syphilis. The patient, a man aged twenty-five, was seized with right-sided convulsions, recurring one to three times a day; he had become syphilised four years previously. There was no fever and the pulse was regular, and Bruni considered the case to be one of Jacksonian epilepsy dependent on a gumma of the left Rolandic area. At first the patient was treated by intra-muscular injections of mercury, and iodide of potassium was given by the mouth. There was no improvement by the seventh day, and the treatment was therefore changed to daily intravenous injection of a solution of corrosive sublimate. The injection was made sixteen times, commencing with three, and increasing steadily up to six milligrammes, after which mercurial inunction was substituted. The injection of corrosive sublimate was made into the left median cephalic vein, and after the second injection the fits ceased and the head pain disappeared. Bruni considers this method of intravenous injection "useful and even necessary" in cases in which other mercurial treatment has failed in severe cerebral syphilis, or where patients cannot stand large doses of mercury. (Medical Times and Hospital Gazette, June 15, 1895, p. 374.)

THYROID FEEDING IN INSANITY.

Dr. L. C. Bruce (*Journ. Ment. Science*, January, 1895) sums up the conclusions of a clinical paper on this subject as follows:—(1) By the internal administration of thyroid gland substance a true febrile process can be induced, and the resulting reaction is beneficial to the patient. (2) The amount of the drug necessary to induce physiological action varies in different individuals, but it is seldom necessary to give a larger dose than 60 grains daily. (3) Excessive and prolonged administration of thyroid extract produces gastric irritation. (4) The use of thyroid extract in the treatment of the insane is accompanied by a certain amount of danger from induced heart weakness. This danger can be minimised, and almost discounted, by confining to the bed during treatment and for some days afterwards. (5) The administration of thyroid is contra-indicated in cases of

mania where the excitement is acute, the loss of body weight rapid, and where there is danger of exhaustion from malassimilation of food. (6) Thyroid treatment appears to be specially useful in the insanity of the adolescent, climacteric, and puerperal periods. (7) Its exhibition is especially useful in cases where recovery is protracted. (8) In cases of long standing, where there is a tendency to drift into dementia, a course of thyroid treatment sometimes gives the necessary fillip which leads to ultimate recovery. (9) Patients under this treatment should be kept in as equable a temperature as possible. (Dublin Journal of Medical Science, August, 1895, p. 161.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

AORTIC OBSTRUCTION.—Digitalis in.

It has been held for many years by able therapeutists that, theoretically at least, digitalis was contraindicated in aortic regurgitation, on the ground that, by its prolongation of diastole, a greater length of time was allowed in which the blood might regurgitate into the ventricle, and that the increased power of contraction in the muscular fibres of the heart did not compensate for the harm done by the prolonged asystolic period. While this idea is absolutely correct theoretically, the clinical fact remains that in some cases of aortic regurgitation it undoubtedly does good, probably by reason of the powerful and complete contraction of the left ventricle which it causes, whereby this cavity is thoroughly and completely emptied at each beat. The employment of digitalis in these three forms of cardiac disease having been briefly considered, the question arises as to whether it is of value in aortic obstruction, and it would seem that there is a considerable divergence of views in regard to this important point. Thus, it is held by some that the cardiac condition in most cases of aortic obstruction is one of excessive hypertrophy rather than lack of compensation, and that the circulatory disturbances seen in persons suffering from this lesion are really often due to excessive activity of the cardiac muscle. Undoubtedly, in such instances, digitalis does good but temporarily, and in the end the patient becomes worse under its influence. On the other hand, there are those who assert that digitalis does harm, even in those cases of aortic obstruction in which failure of compensation is present, claiming that this drug, by reason of the high arterial pressure which it produces, counterbalances any good influence which it may exert upon the cardiac muscle. It

seems to us that this objection is one which holds against the employment of the drug in aortic regurgitation rather than in aortic obstruction ; for, as a matter of fact, the arterial tension of most cases of aortic obstruction is not necessarily very high ; but, on the contrary, when compensation fails, the difficulties of the case rest largely upon its being too low, and, as Bristowe points out, sooner or later pain, palpitation, and breathlessness supervene, the pulse becomes feeble and irregular, the arteries unfilled, and syncopal attacks come on. The heart in aortic obstruction practically never suffers from the wide dilatation so characteristic of aortic regurgitation, and any failure in its action is dependent more largely upon true feebleness of contractility than upon a failure to drive the blood out of the ventricle, owing to expansion of its walls. The necessity of the heart is to cause a free and more perfect circulation of blood, and the only way in which this can be done is by giving the heart sufficient strength to drive the blood through the narrow orifice of the aorta out into the general circulation. The objection that digitalis under these circumstances contracts the peripheral blood-vessels and so increases the work of the labouring ventricle does not exist to the extent that some would have us believe, in our opinion. Even if it did exist, this action of the digitalis, with the already high arterial tension, can be readily set aside through the employment of simultaneous doses of nitro-glycerine or one of the other nitrites. Further than this, we believe that it is a well-recognised fact among pharmacologists that the dominant effect of digitalis is upon the heart-muscle rather than upon the arterioles. There is but one condition in aortic obstruction which seems to us to offer a grave contraindication to the use of digitalis, and that is when there is coexistent regurgitant disease of the mitral valve. Under any circumstances the condition of this patient is most grave, since the compensatory hypertrophy of the heart as it increases day by day still further strains the weakened mitral leaflets in its endeavour to force the blood through the stenotic aortic opening. The use of digitalis in the presence of such lesions naturally increases the strain upon the mitral valves. We believe that the following order of the usefulness of digitalis in valvular cardiac disease may be laid down with considerable accuracy. It is most useful in ordinary cases of mitral regurgitation, next most useful in mitral obstruction, next in aortic stenosis, and least valuable in the average case of aortic regurgitation. Even in the mitral lesions digitalis often fails, and must be supplemented by drugs such as strophanthus, caffeine, and similarly useful remedies. (From a leading article in the Therapeutic Gazette, June 15, 1895, p. 383.)

BLEEDING IN OVER-DISTENSION OF THE RIGHT HEART.

The following is taken from an abstract of an article contributed by J. E. Atkinson to the *Maryland Medical Journal*, December, 1894 :—In the present instance the author calls attention to a phase of bloodletting in which it is of the highest, at times of life-saving, usefulness—that is, the mechanical relief to be afforded by the abstraction of blood in cases where the right side of the heart becomes engorged and over-distended in consequence of increased obstruction to the flow of blood through the lungs or left side of the heart, a condition not rarely observed in intense bronchitis, especially when complicating emphysema, in pulmonary œdema, and in incompetence of the mitral valve or stenosis of the mitral orifice. It is not suggested, however, that all cases of this character are to be benefited by this procedure. In ordinary mitral disease, for example, as hypertrophy gradually yields to dilatation and degeneration of the cardiac muscle, engorgement and dilatation of the right heart inevitably ensue, and sooner or later become extreme. In such cases venesection may entirely fail to afford relief, because the weakened and degenerated ventricular wall will have become quite incompetent to avail itself of the assistance offered it. The conditions are quite different, however, when a dilated and weakened, though still competent, right ventricle becomes over-distended by a sudden increase in the resistance to its systole, through a rapidly developing intense bronchitis in an emphysematous patient, or an onset of pulmonary œdema, or a violent overtaxing of the powers of the left ventricle. Here the right ventricle becomes within a short time greatly over-distended and quite incompetent to overcome the resistance in front so as to empty its chamber. Its suddenly developed feebleness is out of proportion to that of the other ventricle. The blood-supply to the arteries is diminished, while the whole venous system becomes surcharged with blood. Characteristic symptoms quickly appear. The ventricular systole becomes enormously increased in frequency, but diminished in force. Arterial anæmia is shown by the frequent, compressible, unequal, and irregular pulse, venous hyperæmia by cyanosis, hepatic engorgement, dyspnœa, sweating, &c. If relief is not afforded, the patient may die speedily—asphyxiated. Here the morbid condition is evident, the therapeutic indication equally so. A stretched muscle contracts imperfectly. By diverting a portion of the torrent of blood that is pouring into it, we give the stretched ventricle a chance to recover its tone, and it will enter with renewed vigour upon its functions, the systole becomes efficient, and the dammed-up blood will find a vent into the left heart and arteries, and relief more or less

permanent will be afforded. In many cases, as in advanced mitral insufficiency or stenosis, this will be transitory, but in cases of pulmonary œdema and engorgement, &c., brilliant results may occasionally be obtained. As the blood flows from the arm the patient will at once be sensible of great relief, cyanosis will diminish, dyspnœa will subside, the pulse may be felt to grow slow, more regular, and fuller, and before the flow has stopped he will often fall into quiet sleep. (Abstract in the Therapeutic Gazette, April 15, 1895, p. 253.)

BRADYCARDIA, SYNCOPAL.

Dr. Alexander Morison read a paper before the Harveian Society on syncopal bradycardia. He described (1) endocardial bradycardia, in which the chief factor was increased endocardial pressure, and illustrated the condition by cases ; (2) thyocardial bradycardia due to fatty degeneration or fibrosis of the heart muscles, and to changes assumed in the intrinsic neural system of the heart ; (3) exocardial bradycardia due (*a*) to transient reflex nerve irritation, (*b*) to poisons such as digitalis, opium, and chloroform, (*c*) constitutional and extracardial conditions such as rheumatism, syphilis, and meningitis ; (4) compound bradycardia, cases difficult of analysis ; (5) cases of doubtful causation. Dr. Morison went on to show that bradycardia could not be referred to anatomical changes alone, and he attributed an important part in its production to the cardiac nervous system. He laid stress upon the fact that persistent bradycardia was little influenced by cardial irritants, as digitalis, trinitrin, and alcohol among drugs, or by movements which ordinarily quicken the heart. (Medical Press and Circular, May 8, 1895, p. 490.)

CARDIAC DISEASE.—Rest in.

Babcock thus concludes a paper on this subject in the *Medical Press and Circular* for January 2, 1895 :—(1) The position taken by Fraentzel—that rest is injurious in the treatment of all forms of heart-disease—is untenable, and the reasons he assigns are incorrect ; (2) prolonged rest is detrimental, undoubtedly, in cases of enlargement of the heart without valvular disease, particularly if secondary to arterio-sclerosis, and in cases of fatty or other degeneration of the cardiac muscle ; (3) the cause, however, lies in the circulation outside of the heart, and not, as stated by Fraentzel, in the liability of cardiac, like striped voluntary muscle, to degenerate as a result of prolonged inaction, since the heart-muscle cannot during life be subjected to complete repose ; (4) when compensation has become destroyed in valvular lesions of the heart, particularly mitral stenosis and aortic incompetence, rest is indicated theoretically and is beneficial in

practice ; (5) bradycardia would theoretically contra-indicate prolonged rest ; (6) on the other hand, it is called for in paroxysmal tachycardia, but should not be maintained, after having shown its powerlessness to affect the heart-rate ; (7) acute inflammatory or degenerative affections of the heart indicate rigid rest in the recumbent position. (Therapeutic Gazette, May 15, 1895, p. 314.)

CARDIAC IRREGULARITY AND OBESITY.

Kisch, of Marienbad (*Berl. klin. Woch.*, 1895) discusses the cardiac arhythmia of obese persons. Slight irregularity is observed in youthful patients with slight heart trouble, especially in young girls who exhibit the anæmic form of lipomatosis. Actual irregularity, in which regular beats and pulses alternate, is seen chiefly in fat people who have already passed their fiftieth year, and in whom other symptoms of heart trouble are present. Complete irregularity, in which pulse-waves alternating in tension and size regularly follow one another, is seen in cases of obesity with marked heart weakness in which there is dyspnœa, angina pectoris, pronounced backward pressure in the venous system, with œdema and dropsy. Kisch holds, in contradistinction to French authors, that simple cardiac intermittency and slight irregularity are not unfavourable as regards prognosis, and these cases may be seen, after a course of treatment directed to adiposity, to recover their pulse regularity. On the other hand, he regards the occurrence of complete irregularity, delirium cordis, as a sign of grave disturbance of the heart mechanism which can never be completely removed, and is sometimes also the sign of suddenly occurring death. (Medical Record, August 24, 1895, p. 268).

HEART DISEASE, DIAGNOSIS OF.

Dr. Byrom Bramwell observes that the first essential for the successful treatment of every case of heart disease is a correct diagnosis. And by a correct diagnosis I mean as exact an opinion as the circumstances of each individual case will allow: —(1) The nature, severity, and extent of the lesion, and whether it is progressive or stationary ; (2) the condition of the cardiac muscle ; (3) the condition of the arteries ; (4) the condition of the tissues and organs as a whole ; and (5) the special peculiarities and surroundings of each individual patient. In the first place, we must endeavour to form an opinion as to the exact condition of the heart muscle by observing (*a*) the size of the heart ; (*b*) whether hypertrophy or dilatation is predominant ; (*c*) the way in which the heart is acting and contracting, whether forcibly, irregularly, and the like ; (*d*) the condition of the peripheral, arterial, venous, and capillary circulations ; (*e*) the way

in which the circulation is carried on, as indicated by the presence or absence of symptoms indicative of cardiac embarrassment or distress (dyspnœa, palpitation, cardiac pain, &c.), not only during rest, but also under strain, and under conditions which put the heart muscle, as it were, on its mettle ; and (*f*) the way in which the heart muscle responds to tonic remedies. I lay special stress upon the two latter points, for the amount of reserve force which the heart muscle possesses—an all-important point for the purposes of successful treatment—can in many cases only be determined by observing the way in which the heart acts under strain and difficulty, and by noting the way in which it responds to such remedies as digitalis and strophanthus. In the second place, we have to observe the state of the organism as a whole, and in particular whether the conditions for the nutrition of the cardiac muscle are satisfactory or not. And in this connection it is particularly important to note the condition of (1) the blood ; (2) the aorta and the peripheral arteries (for the condition of the aorta and the peripheral vessels in many cases gives us a clue—and it is often the only certain clue—to the condition of the coronary arteries, the nutrient arteries of the heart) ; (3) the stomach, liver, and digestive organs ; (4) the intestine ; (5) the kidneys ; and (6) the nervous system. I need not add that the condition of the lungs is also of importance, since emphysematous and other pulmonary lesions which impede the blood-flow through the lungs throw a strain on the right heart, the activity of which is, in the case of mitral lesions, of so much importance for satisfactory compensation. Further, the natural disposition and temperament of the patient—whether he is hopeful or gloomy, whether he is a good or bad patient, together with his social circumstances and surroundings, his ability and willingness to do what he is told, and to protect himself from injurious conditions—must be taken into account. (Edinburgh Medical Journal, May, 1895, p. 961.)

HEART, SPONTANEOUS PERFORATION OF, WITH OBSCURE SYMPTOMS.

In the case I am reporting the pulse was regular, full, and strong during the entire period, excepting when in the state of collapse in which I found him nine hours after the seizure, and on the forenoon of the day of death, when it showed some intermission. There was no præcordial pain whatever ; at first there was no dyspnœa or any chest symptoms ; the distress coming on the third day was not dyspnœa, but seemed to be a pain low down in the chest, more on the right than left side ; so low was this, I at times thought the diaphragm was in some way affected, rheumatism or rupture of the diaphragm entering my mind as a possible cause of the suffering. There was no

vomiting after the first clearing of the stomach by an emetic. Cyanosis was only present when in the collapsed state, and that passed off in four hours. Pallor was only noticeable in the collapse. Loss of consciousness was not present at any time. Convulsions were absent, but severe cramps in the gastrocnemius muscles bothered the patient at times after the second day; he was subject to these and had been for several years. It would seem that a diagnosis of rupture of the heart cannot be made out with any certainty in any case during life. (Boston Medical and Surgical Journal, July 18, 1895, p. 62.)

HEART TONICS.

V. Ziemssen (*Münch. med. Woch.*, 1895) objects to the tinctures of digitalis and strophanthus on account of their unreliability, and says that both of them should be struck out of the Pharmacopœia. He uses digitalis only in infusion or powder, and strophanthus, in the form of strophanthine, in doses of $\frac{1}{64}$ grain twice a day. This is not cumulative in its action, and, although not so lasting in its effect as digitalis, is the most preferable substitute. Strychnine is, however, the best remedy to restore the heart's action during the compensating period of valvular insufficiency. When existing compensation is disturbed, it is also a valuable adjunct to digitalis. (Medical Age, April 25, 1895, p. 251.)

HYPERTROPHY OF THE HEART IN ARTERIO-SCLEROSIS.

Arterio-sclerosis is one of the most frequent causes of cardiac hypertrophy, and within the past few years has attracted great attention. It is, as is well known, a frequent condition after the fiftieth year, but it is not by any means a constant change in the physically degenerative period of life. It is not uncommon to often find the arteries of aged people free from any such change. Bamberger mentions that on several occasions he has found the arteries free from sclerotic changes as late as the ninetieth year. Then there is the famous case recorded by Harvey where sound vessels were found in a man at the very advanced age of 153 years. Although it is uncommon to meet with marked sclerosis under the thirtieth year, it still occurs sufficiently frequently to make it matter of great clinical interest and importance. The most important form of arterio-sclerosis is that which occurs as a diffuse process, in men from the thirtieth to the fifty-fifth year. Councilman divided arterio-sclerotic changes into three different groups—the nodular, senile endarteritis and the diffuse arterio-sclerosis. In the nodular form the changes are limited to the aorta and large arteries. The aorta is covered here and there, especially at its origin, with

elevated patches, cartilaginous or calcified in appearance. Otherwise the lumen of the vessel presents a smooth aspect. In this nodular form of arterio-sclerosis hypertrophy of the heart is very common. In advanced cases it is to a great or less extent almost constant, the loss of elasticity in the vessels throwing more work on the heart. When the heart increases in size it in its turn tends to increase the arterial changes, so that we have the one condition keeping up the other, a morbid circle being formed. In the typical senile endarteritis, the aorta and its larger branches are converted into almost rigid calcareous tubes. The arteries are irregularly dilated and lengthened. Cardiac hypertrophy is not as constant a result of the senile endarteritis as it is of the other varieties. This is in a great measure due to the obsolescence of so many of the smaller arterial branches as people grow older. It is brought about by the loss of the elasticity in the arteries, so that the blood flow in the capillaries from being continuous becomes intermittent and in many areas finally ceases. The diffuse form of arterio-sclerosis is in many respects the most important ; here the arterial changes are widespread, affecting the whole arterial system to a greater or less extent. More than half of Councilman's cases were examples of the diffuse varieties, the youngest being a negro aged 23, the oldest was a man aged 60. The great majority of cases ranged in age between 40 and 55. Hypertrophy was present in every case, in some it reached an extreme degree. Myocardial changes were found to be frequent, their extent depending on the degree of involvement of the coronary arteries in the sclerotic process. Dilatation of the heart is nearly always a constant accompaniment of the diffuse sclerosis of the arteries. In fact, in all varieties of sclerotic arteries the heart is not only hypertrophied, but also dilated. The dilatation in these cases may be so excessive as to give rise to leaking of the valves. Clinically there is a difference between the diffuse arterio-sclerosis and the senile endarteritis, the former being characterised by the high arterial pressure, a condition which is not present in the latter, at any rate, when pure and simple. If however, the kidneys have undergone degenerative changes the arterial pressure will be increased. The difference in the two states is chiefly accounted for by the slowness of onset in the senile disease as compared with the quicker process in the diffuse form. In the former the atrophy of tissue is also greater. (From Professor James Stewart's paper in the Montreal Medical Journal, April, 1895, p. 737.

MERCURY IN HEART DISEASE.

Dr. Murray contributes an article on this subject to *The Lancet* for September 28, in which he says that repeated observation has

convinced him that mercury possesses a value far beyond the supposed alterative nature of its action. Its special benefits are exercised in cases of dilated and hypertrophied heart. By means of it the thready, weak, rapid, and irregular pulse is made full, soft, regular and slow, with manifest relief of such symptoms as dyspnœa, pectoral weight and tightness, and sensations of faintness. The *angina sine dolore* is often marvellously relieved and removed by two or three grains of blue pill three times a day, and the severe forms of angina pectoris not infrequently disappear under its influence. While the nitrites, nitroglycerine, &c., afford temporary relief, this remedy is much more permanent in its effects. It need hardly be said, says Dr. Murray, that to give digitalis a fair chance it is absolutely necessary to pave its way by preliminary doses of mercury and to foster its action by repeated doses. Many of the cases were digitalis, &c., fail, or seem to fail, by supposed accumulation depend on this : that we are giving the digitalis without the blue pill or calomel, and it often falls to the lot of the consultant to make a great hit by inserting the mercurial into the previous treatment. Much more true is this of iron and digitalis combined. We see a patient with engorged vessels and labouring heart taking iron and digitalis much to the detriment and not to the benefit of the case—each dose is but adding fuel to the fire —energising the heart in its futile attempts to drive the blood through the engorged vascular system, and thus exhausting the organ in its hopeless struggle. All this is changed by frequently repeated doses of mercury ; the portal system is drained, the water from the general vascular system is "exosmosed," dropsical accumulations are absorbed, and, by pushing the drug, we get hold of the heart itself and produce the slow, soft, regular, and effectual pulse, giving the digitalis or strophanthus a fair chance to come in as cardiac tonics ; and at last we complete the circle by arriving at the point whence we departed with the patient in a very different condition, and we can give the iron and digitalis now with impunity—nay, with immense benefit. (From abstract in New York Medical Journal, October 19, 1895, p. 510.)

MITRAL STENOSIS PULSE.

I sum up my belief with regard to the matter in the following statements :—(1) In healthy individuals the pulse varies : some have a normal pulse-tension fairly "high" ; others, a normal pulse tension fairly "low." In mitral stenosis, this physiological individual difference must not be lost sight of. (2) It would appear that most cases of the lesion pass through three stages :— (*a*) A stage in which auscultatory signs (presystolic murmur, &c.) are best developed, while symptoms of disturbed circulation are feebly developed or absent, and in which the pulse is regular

and of high tension, showing a well-developed tidal wave. There is, of course, nothing characteristic of the lesion in such a pulse. (*b*) A stage in which symptoms of disturbed circulation are more or less pronounced, and which is accompanied by an irregular pulse. Many patients die in this stage. (*c*) The pulse of the second stage becomes one of low tension, and may be regular or irregular as regards the height of the upstrokes of the tracing, &c. ; more often, I think, the former. In many cases this stage is never reached, the patient dying in the second stage. On the other hand, the third stage is often reached and recovered from, stage 2 and even stage 1 being resumed. A low tension pulse (third stage) is often temporarily assumed from a variety of causes (pyrexia, &c.). I believe few patients die with a first stage pulse, except from complication. Physiological low-tension must be borne in mind in estimating the prognosis. I fancy certain patients have low-tension pulses from first to last. The three stages to which I have referred are mere generalisations. It must not be supposed that exceptions are infrequent. (3) The bigeminal pulse is frequently met with in mitral stenosis, but is also common in simple "muscle" cases. In aortic incompetence even it is by no means rare. It should not be associated with any one lesion, and digitalis is commonly a factor in its production. (4) No pulse is pathognomonic of mitral stenosis. Each type of pulse met with is also met with in other diseases. A patient with mitral stenosis may show, at different times and under different circumstances, extremely high tension (especially under the influence of digitalis), and extremely low tension. In the stage which I have described as the second stage the pulse tracing may be regarded as a combination of the characteristic curves of the first and third stages. The second stage may not be represented. (From Dr. Graham Steell's paper in the Medical Chronicle, September, 1895, p. 434.)

PRACTICAL OUTCOME OF RECENT RESEARCHES ON CANCER.

(London : J. & A. Churchill, 1895.) By H. Snow. The first point he takes up is the insidious infection of bone-marrow by mammary carcinoma, already referred to in the first paper. The most striking symptom is a slowly progressive prominence of the sternum at the junction of the upper and middle portions of that bone. The phenomena are developed in all ordinary cases of breast carcinoma not excised within two or three months, usually appearing four to five years after removal of the breast. Dr. Snow considers this explains many mysteries which have attended carcinoma of the mamma, such as grea tendency to recur after excision, and to deposit long afterwards

in the opposite breast. Obscure bone lesions, known as mollities ossium, osteitis deformans, osteoporosis, &c., have been identified sometimes with the presence of a malignant deposit in the marrow. Of 150 cases of mammary carcinoma, seen at an average date of ten months from inception, 90 showed well-marked symptoms of marrow infection at the first interview, and others developed them later, so that excluding "atrophic" cases, Dr. Snow believes that marrow infection may be traced in 80 per cent. He then reaffirms his belief in the marked action of opium in the retarding growth of cancer and delaying death, and pleads for its exhibition in the very earliest stages. He says the practice of withholding opium until pain compels its use is simply barbarous. He points out that the beneficial effects of opium are scientifically comprehensible when taken in conjunction with the indisputable frequency of supervention of mammary or uterine cancer upon an epoch of keen mental distress and anxiety. He points out that cancer rarely kills so much by its growth on the primary site as by the infective metastasis. Therefore a permanent cure can always be effected in the organs with which the surgeon is mainly concerned, provided not only the part first diseased, but also the tissues ordinarily infected secondarily, be timeously removed. The lymph glands in the definite "infection path" should always be removed "before the relatively late stage of enlargement." In the case of sarcoma, however, enlarged lymph glands are proof of infection of the blood current, and imply visceral deposits. Hence, excision of the glands will be futile, and it will generally be unwise to touch surgically the primary new growth. In recent cases with no affection of lymph glands there is no object in the removal of these along with the primary tumour, whilst in cases of early carcinoma, removal of the adjacent lymph glands is imperative. (Mr. Coutts, in the Medical Chronicle, September, 1895, p. 448.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

BRONCHIECTASIS AND PULMONARY GANGRENE TREATED BY ANTISEPTIC INJECTIONS.

(Baron de Rokitansky, *Gaz. des Hôpitaux*, May 2, 1895.)—Since 1878 the writer has adopted a method, suggested also by Dr. Seifert in 1883, of treating cases of bronchiectasis and gangrene by intra-pulmonary injections of carbolic acid. The details are as follows:—After completely disinfecting the chest wall, a long needle attached to a Pravaz syringe containing carbolic acid solution, 3 per cent., is thrust into the intercosta

space over the cavity, and 1 or 2 cubic centimetres are *slowly* injected. Usually the patients smell at once the carbolic, and have an attack of coughing, which is less the more slowly the injection is made. The needle is withdrawn and collodium applied. The author has treated 43 cases of bronchiectasis and 7 of pulmonary gangrene in this way, and never seen any ill effects : moreover, in all the cases of bronchiectasis the improvement was very great, both in the local malady and in the general health. Even in the most severe cases of pulmonary gangrene, the sputa became much less offensive and diminished in quantity, and in 3 of the milder circumscribed cases recovery followed in eight, eleven and thirteen days respectively. (Dr. A. J. Hall, in the Sheffield Quarterly Medical Journal, July, 1895, p. 387.)

CROUPOUS PNEUMONIA IN CHILDREN.

Dr. Francis Hawkins describes two cases in children aged six and seven years respectively. He makes the following remarks :— Croupous pneumonia is common in children, but it may occur at any time after the first year of life. Barthez and Saurre have met with instances in children six weeks, four months, and six months old. It is frequently confounded with feverish attacks and meningitis. The most frequent symptoms at the onset of croupous pneumonia in children are vomiting, cough, pain, and drowsiness, which may occur either separately, together, or associated with anorexia, dyspepsia, delirium, or diarrhœa, and any of these symptoms may accompany the disease throughout its whole course, or cease at the instance of well-marked pulmonary signs. These latter may not be present, at least in a recognisable condition, until some days after the absolute onset. In the case now under review the child had been ill for some days before the pulmonary signs manifested themselves in a marked condition. On the other hand, the crisis of this disease may follow the symptoms of invasion with great rapidity, and the actual pulmonary signs not be present until the crisis. I do not say this is a constant feature of the disease, but that it is a frequent one. The crisis may occur as soon as thirty-six or forty-eight hours, and as late as the fourteenth day, being in most instances on the sixth or seventh day. Such cases may be easily mistaken for feverish attacks or meningitis, the latter being a not uncommon error. Diarrhœa is not a very frequent symptom at the onset of croupous pneumonia, yet it may thus occur, and may even remain throughout the course of the disease. (Clinical Sketches, April, 1895, p. 106.)

EMPYEMA.—Treatment of.

The general summary based on an analysis of 86 cases related by Dr. Edmund Cautley is :—(1) When pus is found to be

present in the pleural cavity, the proper treatment is to remove it; (2) the best method to adopt for its removal is simple incision and drainage; (3) the best site for the operation is the fifth space in the mid-axillary line; (4) irrigation is unadvisable and is indicated only in cases of fœtid effusion; (5) exploration and scraping of the cavity are not necessary; (6) resection of rib is practically never necessary in children as a primary procedure to procure efficient drainage; (7) resection of rib may be necessary to secure the closure of the sinus subsequently by allowing the chest wall to fall in; (8) collapse of the chest wall is not a result to be desired in the early stages of the treatment; (9) rapid and complete expansion of the lung is the great object of the treatment; (10) the tube must be removed early. (The Practitioner, October, 1895, p. 403.)

LARYNGEAL POLYPI.—Treatment of.

Dr. H. A. Francis sums up the treatment thus:—The methods of treatment are removal by intra or extra-laryngeal operation. In the intra-laryngeal operations the means employed are forceps, snares, sponge, on a probe and caustics. Of forceps there are various kinds, such as Mackenzie's, Steorks', Schroetter's, and Fauvel's, &c. Mackenzie's are the safest, and answer best for most cases. Snares are very useful for some soft growths, but you may hook a fish in the larynx that is difficult to land. Sponge on a probe is useful for small multiple papillomata, but often gives rise to much laryngitis. Caustics are only mentioned to be condemned. The chief extra-laryngeal operations are:—(1) Thyrotomy; (2) section of thyro-hyoid membrane; (3) section of crico-thyroid membrane. The arguments against thyrotomy, which is the most usual operation, are briefly:—(1) It may destroy the voice for ever. So it is necessary never to cut completely through the cartilage; the upper portion should be left, in order to ensure proper approximation of cords. (2) The cartilage may be ossified, so you may cause fracture and get perichondritis. (3) You are apt to get bleeding into the trachea, so that it is better to first do tracheotomy and insert a tampon canula. (4) You are apt to have a fistula left. (5) You are apt to get cicatricial adhesions between the vocal chords. (6) The growths return just as readily as after removal by intra-laryngeal methods. (Australasian Medical Gazette, April, 1895, p. 165.)

PERICARDITIS, RETRACTION OF THE LOWER CHEST POSTERIORLY IN CHRONIC.

Broadbent (*The Lancet*, No. 3752, p. 200) calls attention to a hitherto unpublished physical sign in the diagnosis of chronic pericarditis. This consists in a visible retraction, synchronous

with the cardiac systole, of the left back, in the region of the eleventh and twelfth ribs, with sometimes, also, similar retraction of less degree upon the right ride. Four cases are reported, all of which presented a definite history of pericarditis, and three, also, other conditions suggesting an adherent pericardium. It is explained that the only means of causing the retraction referred to on both sides seemed to be the diaphragm, which if pulled upon would have more effect upon the floating eleventh and twelfth ribs than on the other more fixed ones. In cases of large heart with adherent pericardium there is a considerable area of the ventricles closely adherent to the central tendon of the diaphragm, and the powerful contraction of the hypertrophied heart must give a decided tug to this structure. That it should affect the ribs more often on the left side would be expected, from the adhesion being mainly to the left of the middle line. The liver also, which is often large in these cases, may restrain the movement on the right. (Medical News, September 21, 1895, p. 326.)

PNEUMONIA, ACUTE LOBAR.

The debate at the British Medical Association Meeting, 1895, on acute lobar or croupous pneumonia, its etiology, pathology, and treatment, was opened by Dr. R. Douglas Powell, who gave an excellent *resumé* of the present aspects of the question. After expressing much regret that he could not record any practical abatement in the mortality of the disease, he emphasised the fact that probably 20 per cent. of the cases were attributable to surface-chills, contracted through hygienic imprudence, especially amongst those past middle life, and this imprudence was likely to be encouraged by the fatalistic and inadequate view that the reception of a microbe was alone sufficient to cause the disease. After having reviewed other conditions besides chills, such as depressed vitality, privation, the uræmic state, rheumatic conditions, diabetes, &c., Dr. Powell passed on to the question : how far was the reception and cultivation of a specific organism essential? Friedländer's, Fränkel's, and Klein's microbes were contending for the honour of disseminating pneumonia, the pneumococcus of Fränkel being most in favour. Undoubtedly pneumonia was a specific general (and therefore a microbic) disease, but the pneumococcus could not as yet be altogether accepted as the germ of pneumonia. He pointed out that besides the prevalence of this coccus in pneumonia it had been also found in healthy saliva, in urine, in the exudation of meningitis, in ulcerative endocarditis, in otitis media, and conditions which have little resemblance to or association with pneumonia. In secondary inoculations septicæmia was the most common result, and this was too loosely accepted as valid

evidence of specific virulence. Pneumonia might resemble such diseases as tuberculosis, erysipelas, acute rheumatic tonsillitis, and influenza, which although possessing a specific organism, required for their efficient etiology certain additional conditions of impaired vitality, local and general, to enable the organism to become aggressive. After describing some varieties of the disease, and having reviewed the principal methods of treatment in vogue, Dr. Powell expressed himself in favour of the routine saline treatment as sufficient and useful for ordinary cases, whilst various drugs such as strychnine, caffeine, digitalis, and morphia were most valuable remedies for special indications. He does not encourage treatment of the pyrexia, and would consider a temperature up to 104° to be normal. The pyrexia of pneumonia is brief, normal to the disease, unfavourable to microbic activity, and inasmuch as the growth of this germ was checked by a temperature of 104°, it was not advisable to reduce it when not excessive, and then not below 102°. He was not able as yet to sanction the use of antitoxin in pneumonia, but he thought that it would probably be along these lines that progress would be made in the future.

Dr. Washbourn continued the discussion, and spoke on the specific character of the disease, its artificial production, and its variations in virulence, the modification of the type being masked by local action, as in meningitis. He believed that the sole cause of the symptoms was the formation and action of toxins, and that the crisis was due to the formation of a substance called an antitoxin.

Dr. Auld, Dr. Dreschfeld, and Dr. Foxwell all spoke on the specific infectious character of the disease, and Dr. Tyson considered that the bacteriological examination of the subject served to explain the great differences clinically met with in various cases.

Many other speakers commented on various details of treatment, and I took the opportunity of expressing regret that the meeting had not heard from Dr. Petresco, of Bucharest, some details of the means by which he is able to report a mortality of only 2 per cent. in a series of 1,300 cases, after treatment by large doses of digitalis, in contrast to the usual results of English hospital treatment, which show a mortality of 20 to 25 per cent.

Dr. Balfour, of Edinburgh, also spoke in favour of digitalis, in moderation, to rouse the failing heart, and stated that as much as 120 grains would often be required if continued till the crisis occurred.

Professor Baümer, of Freiburg, eulogised the utility of cold bathing, but he did not approve of the use of medicinal antipyretics. (Dr. Shingleton Smith, in the Bristol Medico-Chirurgical Journal, September, 1895, p. 199.)

PULMONARY TUBERCULOSIS.—Early Diagnosis of.

No portion of our knowledge concerning pulmonary tuberculosis should be neglected, but particular attention may well be given the points mentioned, the most important of which are the following :—(1) Preliminary history, including heredity, exposure, and susceptibility. (2) Medical history, including the mode of access and subsequent course. (3) Symptomatology, including the character and significance of the cough and expectoration : hoarseness ; hæmoptysis ; pain and soreness ; gastric disturbances ; nutrition, weight, and strength ; temperature ; pulse and sphygmography ; thoracic inspection and mensuration ; percussion and auscultation ; examination of sputum, &c. (From Dr. Edward F. Wells' paper in the Medical News, September 21, 1895, p. 313.)

TUBERCLE BACILLI IN THE SPUTUM.

Spengler (*Deut. med. Woch.*, 1895, No. 15) recommends the following new procedure :—To the sputum in a beaker are added an equal quantity of lukewarm water alkalinised with sodium hydroxide and from 1·5 to 15 grains of powdered pancreatin. The mixture is well shaken, and from 1·5 to 15 grains of crystallised carbolic acid added, and the whole is placed for three hours in the thermostat. When a sediment has formed the supernatant fluid is decanted and the examination is made. If the sediment is excessive water is added, alkaline if necessary, and the mixture stirred and digestion permitted to proceed. In the course of a few hours a small sediment will have formed, which is again washed and then centrifugated or dried upon filtered paper. In the case of pure cultures of tubercle bacilli it has been found that protracted digestion results in no harm, but in the case of sputum it is desirable that this be not too long continued. (Medical News, May 25, 1895, p. 582.)

Tubercle Bacilli in the Sputum.

The numbers and characters of the bacilli afford no valuable evidence of the severity or activity of the disease or of the gravity of the lesion. This is all the more obvious when we remember the varying relation shown by tubercular foci and cavities to bronchi, the unequal and varying powers of discharge shown by the same or different patients, the great possibility of variation of vital activity which the bacilli may possess in no way related to any physical differences they may show, and, lastly, the great difficulty of arriving at even an approximate estimate of the numbers present in any given quantity of sputum. While, however, we can place but little reliance upon the bacilli for the purposes of prognosis, we may make certain

general inferences which may be of use to us. We cannot hold that there is any definite ratio between activity of disease and number of bacilli ; but I think we may hold that, as a rule (which has many exceptions), they are numerous in acutely progressing cases and scanty in chronic cases, that their steady diminution in number possibly means a tendency towards recovery, and that their complete disappearance is a good sign, indicating a retrogression of the disease, or at least a quiescent cavity. During the only period of their apparent steady diminution in the present case, whilst the patient resided at Torquay, there was a marked improvement in his general condition. Diminution in amount of sputum and numbers of bacilli occurred at the same time as the general improvement in his bodily health ; and I have more than once thought that a relapse in the latter has been accompanied by an increase in both of the former. I have also seen this in other cases. I do not mean to overrate either the diagnostic or prognostic value of the presence of tubercle bacilli in the sputum. The general condition of the patient and the physical signs are far truer indications of the extent, rate, and progress of the disease. In the great majority of cases the physician will value, and rightly too, these signs and symptoms far more highly than a bacteriological examination of the sputum, though the latter may often enable him to convert a mere suspicion into a certainty, or, as in the present case, where not even a suspicion existed, indicate at once the true nature of the case. (From Dr. R. F. C. Leith's paper "On a Case of Incipient Caseous Pulmonary Phthisis, with abundant Bacilli in the Sputum," Edinburgh Medical Journal, October, 1895, p. 319.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

CHYLURIA DUE TO THE FILARIA SANGUINIS HOMINIS.

By Professor Austin Flint. Judging from this single case, it appears that methylene blue is a prompt and efficient remedy for chyluria dependent upon *Filaria sanguinis hominis.* In this instance more than a year has now elapsed without a return of the disease. This single experience points to the possibility of benefit from methylene blue in the treatment of other diseases due to the filaria, such as chylous collections in the peritoneal cavity and in the cavity of the tunica vaginalis testis, hæmaturia, and elephantiasis. (New York Medical Journal, June 15, 1895, p. 737.)

ENTERITIS, MEMBRANOUS.

Mr. Percival Crouch, M.B., F.R.C.S., reports four cases of this disease, and draws the following conclusions. (1) It is apparently a complaint which does not yield to treatment in the majority of cases. It may improve while the patient is under treatment, but it also improves for a time without any treatment at all. (2) It is not a fatal complaint. People may have it years and pass vast quantities of mucus, and yet look fairly well at the end of that time. (3) It often improves temporarily, and then returns after a short or long interval. In some cases it recurs at regular times, and continues to do so every month or so for years. (4) It almost always occurs in dyspeptic and somewhat neurotic patients. (5) It is essentially a disease which is affected by the mental state of the patient. In some cases worry always brings on an attack, while freedom from care is almost essential to its cure. (Bristol Medico-Chirurgical Journal, March, 1895, p. 14).

FLATULENCY.—Treatment of.

The chief thing is to aim at increasing the nervous vigour, and hence tonics, especially nervine tonics, are of the greatest importance. Pre-eminently stand nux vomica and its alkaloid, strychnine. If one were restricted to a single remedy, the choice would certainly be strychnine. When flatulence is associated with pain after food, and a coated tongue indicating gastritis, the following prescription should be given :—Potassii bicarb. vel sodii bicarb. ℥ij ; sp. ammon. arom. ℥jss ; Liq. strychninæ ♏xxx ; sp. armoraciæ co. vel sp. cajuputi ℥jss-℥ij ; sp. chloroformi ℥j ; Infus. calumbæ vel gentianæ co. ad ℥vj. M. ft. mist. A sixth part three times a day between meals. The alkali and bitter clean the tongue and correct the disordered state of the gastric mucous membrane. The strychnine braces up the muscularis, whilst the carminatives, horse-radish, or cajeput, and chloroform excite reflex contractions of the stomach. If the pain in the stomach is great, 1 drachm of Schacht's liquor bismuthi should be added to the mixture. In addition to the above the following pill should be prescribed :—Acid carbolic. gr. xij ; zinci valerianat. gr. xx ; aloinæ gr. vj ; ext. nucis vom. gr. $\frac{1}{4}$, vel strychninæ gr. $\frac{1}{30}$; oleo-resin. capsici guttæ j ; M. ft. pil. xij. One pill night and morning. The aloes to be omitted when the bowels act sufficiently ; but in the great majority of cases constipation is present, due to torpor or want of tonicity of the colon, producing intestinal flatulence. Of the value of carbolic acid in such cases I have not the smallest doubt, in spite of the difficulty, as already stated, of explaining its action. Menthol or creosote may be used to replace the carbolic acid, though the latter is, in my experience, by far the

best. Pil. assafœtidæ co. is also of much service, and may be used instead of the valerianate of zinc. When there is much tendency to spasm, $\frac{1}{4}$ or $\frac{1}{3}$ of a grain of extract of belladonna is a useful adjunct. In many cases where there is habitual constipation with frequent flatulence this pill should be taken, with any of the modifications suggested, for months together; and patients whom I have watched for years go back to such a prescription from time to time with invariable relief. When acidity is present the same mixture and pill are frequently efficient, the alkali given between meals correcting the acidity in the residual mucus. In obstinate cases the bismuth lozenge of the Pharmacopœia, or, better still, the modification of it suggested by Sir William Roberts, sucked slowly between meals, is sometimes of service. When, as not infrequently happens, there is no evidence of gastritis or acidity, tonics should be given between the meals. Quinine and strychnine are the most important. They may be combined with iron, often with advantage; and Easton's syrup, or the compound syrup of the hypophosphites, are convenient forms of administration. When, apart from gastritis, there is marked pain—gastralgia—which occurs independently of food and is often relieved by a meal, arsenic is often of great service. It may be added to either the mixture or the pill. In enteralgia Indian hemp often answers better than any other remedy, and may be given with the pill, in doses of $\frac{1}{3}$ of a grain, twice or three times a day. For the violent spasmodic attacks with great distention of the stomach and intestines, to which some sufferers from flatulence are liable, and which cause so much distress and often excite severe anxiety in both patients and their relatives, a powerful carminative and antispasmodic mixture should be in the hands of the patient to be used whenever the attacks occur. The following is nearly always efficacious:—Sp. cajuputi; sp. ammon. arom; sp. chloroformi āā ℥ss. One teaspoonful in a wineglassful of water every half-hour or every quarter of an hour until relief is obtained. (From Dr. Stephen Mackenzie's paper in The Practitioner, July, 1895, p. 26).

GALL BLADDER.—Normal Position in Males of.

Dr. John B. Hamilton gives the following direction for finding the gall-bladder:—Draw a line from the anterior superior spinous process of the ilium to the centre of the xiphoid appendix. Intersect this with a line from the umbilicus to the tenth costo-cartilaginous junction. In the right upper triangle near the apex, but nearer the right oblique line, the fundus of gall cyst will be found. A needle thrust through the abdomen at the point indicated will usually transfix the gall-bladder. The position of the gall-bladder varies with the changes in the

position of the liver ; in enlargements it is pushed downward, and in some cases deflected to the right. (Journal of the American Medical Association, April 13, 1895.)

GALLSTONES.—Their Localisation and several Operations for their Removal.

By Mr. Jordan Lloyd (*Birm. Med. Review*, April, 1895). Gall-stones may be met with in six different conditions, and these may be placed in two groups : first, those in which the walls of the gall-bladder are yielding, allowing of its distension, and secondly, those in which the walls are contracted, indurated, and indistensible. In the first group are placed No. 1, in which the stone lies in the gall-bladder : here there are attacks of colic, but usually no tumour, no jaundice, no pyrexia ; No. 2, in which the stone lies in the cystic duct, usually giving rise to colic and presence of a tumour formed by the distended gall-bladder ; No. 3, in which the stone lies in the common bile duct, giving rise to cases characterised by colic, tumour, jaundice, and sometimes pyrexia. In the second group, in No. 4 the stone lies in the shrunken gall-bladder or cystic duct, and this is the most difficult condition to diagnose. It may be suspected where paroxysms of pain are frequently recurring, and where pyrexia and local tenderness are present. In No. 5 the stone is in the common bile duct, which is thickened and dilated, whilst the gall-bladder and its duct are shrunken and indurated : the author considers this the most interesting condition : its diagnostic recognition we owe to Dr. Osler, of Baltimore. The symptoms are paroxysmal hepatic colic, well-marked ague-like attacks, characterised by chill, sweating, and fever, chronic jaundice of varying intensity, deepening after each paroxysm and fading during the intervals. In No. 6 the shrunken gall-bladder is packed with stones, and a calculus is present in the common duct. This condition gives rise to similar symptoms to those of No. 5, and can only be recognised at the time of operation. Mr. Jordan Lloyd then refers to the operative procedures practicable in the different conditions. In No. 1, with a stone lying free in the gall-bladder, the operations applicable are cholecystostomy, cholecystotomy, cholecystectomy, and cholecystenterectomy. The author prefers cholecystostomy, which he differentiates from cholecystotomy, reserving the latter name for an operation by which the gall-bladder is opened and returned into the abdominal cavity without stitching to the fascia of the rectus and without insertion of a drainage-tube. Cholecystectomy and cholecystenterostomy are more dangerous and unnecessary measures. When a stone is impacted in the cystic duct, as in No. 2, the same operations are feasible, but in addition cholelithotrity or choledochotomy may be called for.

Cholecystostomy should be tried first. Often the stone in the cystic duct may be squeezed back into the gall-bladder more readily before the latter is opened. The condition No. 3 is less common, and may be dealt with as No. 2, but the operation is more difficult on account of the distance of the calculus from the gall-bladder. In No. 4 we have a condition in which the gall-bladder is so contracted that it cannot be sutured up to the abdominal parietis. Cholecystostomy is therefore impracticable; cholecystotomy with suture of the opening in the wall of the gall-bladder is possible, but both difficult and dangerous; cholecystectomy might sometimes be tried. Cholecystenterostomy is impracticable by mechanical apparatus, such as Senn's plates or Murphy's buttons, and anastomosis with simple suture is out of the question. Choledochotomy or cholecystotomy, without suture, are the most efficient procedures in this type of case. Free and perfect drainage is necessary, and it may be advisable, as also in conditions 5 and 6, to drain the right lumbar peritoneal pouch by a tube through the abdominal wall in the lumbar region, just below the lower end of the right kidney. In treatment of Nos. 5 and 6 cholelithotrity and choledochotomy are the only operations applicable, and the author favours the more radical procedure of choledochotomy. It is a waste of time to attempt to suture the duct; tamponing with iodoform gauze and free drainage are necessary. (From Mr. Coutt's abstract in the Medical Chronicle, August, 1895, p. 360.)

GOITRE.—Treatment of.

By Prof. Kocher. At the Congress of German Surgeons which met on April 17 in Berlin, Professor Kocher, of Berne, reported that in the last 900 cases operated on by him the method of total extirpation was wholly abandoned, and only the partial operation was performed. Since proceeding in this way he has not had any cases of cachexia strumipriva except in one instance, where the remaining part of the gland was found to be atrophied. This case was cured by the internal administration of thyroid gland. Although he was well satisfied with his results, the mortality being only 12 per cent., he hoped that the number of operations would soon be reduced, and that internal medication would be substituted. He made a very remarkable communication, describing the influence of the internal administration of thyroid extract and phosphate of potassium, and showed several photographs of patients where the reduction of the gland after the use of these internal remedies was very obvious. His address was listened to with much interest, and caused a great sensation. Professor Mikulicz said that the internal use of thymus gland was also able to reduce the goitre. Professor von Eiselsberg had not found this to be the fact in his experience. (Medical Record, June 1, 1895, p. 688.)

HEPATIC ABSCESS FOLLOWED BY AMŒBIC DYSENTERY.—Operation, Recovery.

The following case is of special interest as demonstrating the causal connection between dysentery and the so-called tropical abscess of the liver. The amœba dysenteriæ was found in the pus, from the liver, and in the evacuations. Specimens of the pus were frequently examined upon the warm stage, but very accurate observations were not easy on account of the density of the pus and the great number of other elements besides the amœba. The shape of the living amœba was very various and irregular, the commonest variety being oval or pyriform. The outline of every amœba was very distinct, giving the appearance of a dense investing or limiting membrane. The most noticeable feature was the presence of vacuoles of various sizes, one being commonly noticed to be much larger than the rest. The division of the body of the amœba into an ecto-and endo-sarc was sometimes noticed, though rarely; this distinction was more marked in the stained preparations. The ecto-sarc was seen to be quite clear and highly refractile, while the endo-sarc, in addition to the vacuoles, contained several blood-corpuscles, resting on a groundwork of granular material. The size of the resting amœba was very variable, ranging, in oval organisms, from a long diameter of 70μ to 20μ, and a transverse diameter of about 15μ to 20μ. The round amœba had in most instances a diameter of 20μ to 30μ. In some of the amœba as many as sixteen to twenty red corpuscles were seen, some retaining their yellow colour, while others were quite devoid of pigment, looking like round or oval colourless discs, in many cases overlapping each other. In the fresh specimens a nucleus was only rarely seen, and then with difficulty. On the warm stage some of the amœba were in active movement, altering their position from time to time. These movements were effected by the throwing out of pseudopodia, which became fixed, and the body of the amœba then merging into the processes which had been thrown out. These pseudopodia were of various lengths, the majority being short, thick, and with round, blunt extremities. No movements of the protoplasmic granules were noticed. A large number of stained preparations of the hepatic pus was made. The details of the amœba could be more accurately made out than in the fresh specimens. In almost all amœba the nucleus was prominent and deeply stained. Besides a large number of red blood-corpuscles and the granular groundwork of the organism numerous cells with deeply stained nuclei were seen and taken to be pus cells. Another interesting feature of the case was the attack of dysentery from which the patient suffered three days after the opening of the liver abscess. Since the first attack, eighteen

months previously, the patient had had no return of the dysentery, so that it is possible that the opening of the abscess again started the dysentery. The stools were examined microscopically, and besides numerous blood-corpuscles a few dead amœba were seen, all of them having a circular outline. The facts that amœba were found, although in small numbers, in the stools, and that the dysentery yielded so readily to large rectal injections of quinine seem to show pretty clearly the relation of dysentery to liver abscess and of the amœba dysenteriæ to both affections. The length of time from the primary outbreak of dysentery to the onset of symptoms pointing to hepatic abscess is also worthy of note. (From Dr. Curnow's paper in The Lancet, May 4, 1895, p. 1109.)

PANCREATITIS, HEMORRHAGIC.

Dr. Elbridge G. Cutler (*Boston Medical Surgical Journal*, April 11, 1895, p. 354) reports two cases and makes the following remarks :—The symptoms of hemorrhagic pancreatitis are oftentimes suggestive rather than distinctive. The most common symptom is pain in the upper abdominal region, which may be very intense, and is increased by pressure and deep inspiration. Accessory symptoms are nausea, vomiting, loss of appetite, irregularity of the stools (sometimes constipation, at other times diarrhœa), and distention of the gastric region. If the case is about to terminate fatally, very soon there is much loss of strength, collapse supervenes, and the patient dies. The temperature may be normal, only a little elevated, or it may at times be high. The most common complication is peritonitis. Icterus, as in the first of my cases, is more seldom seen. Sometimes the symptoms are those of ileus ; and, according to Eichhorst, if the pancreas is enlarged, it may press on the intestine and thus make it impassable. Sugar in the urine has been found in a few instances, as in the second of the above cases ; and, as a symptom, it is with our present knowledge merely suggestive.

PERITYPHLITIS IN CHILDHOOD.

In concluding an article in the *D. Med. Woch.*, 14/95, on an interesting case of the above, Dr. Schafer, of Prof. Soltman's Kinderlinik, Leipsic, sums up as follows :—The treatment of perityphlitis in childhood should be carried out on exactly the same lines as in adults. As the disease is not confined to the bowel, all active treatment, such as purgatives, emetics, and enemata should never be employed. Numerous cases are recorded in which one or another of the above-named measures has led to perforation with a fatal result. As soon as the first precursors of perityphlitis have made themselves manifest in

a child, there should be no delay in quieting the bowel by opium, and if necessary by heroic doses, an ice-bag should then be placed over the ileo-cæcal region, and an absolute milk diet should be given by teaspoonfuls and ice cold. In order to keep the bowel slippery, and at the same time to diminish the irritation of the hard fæcal masses the opium should be given in oil emulsion. In this way in many cases the disease will be arrested. Special care in diet is demanded during convalescence, as the severe symptoms may readily be recalled by the slightest error. For this reason prophylaxis (*i.e.*, the avoidance of solids) is indispensable in children who have already had perityphlitis. In relapsing cases, where the symptoms called for it, surgical measures are of course called for. (Medical Press and Circular, October 9, 1895, p. 364.)

RECTUM AND SIGMOID.—A New Method of Examination.

Dr. Howard A. Kelly announces a new method of examination and treatment of diseases of the rectum and sigmoid flexure. This method he has been using for 11 years, but has not perfected it until within the last two years. The details of his procedure are given in the *Annals of Surgery* for April, 1895, The steps are briefly these :—(1) Thorough evacuation of the bowels. (2) The patient is placed in a knee-breast posture, the elbows spread out at the sides, while the thighs are perpendicular. (3) A cylindrical speculum or proctoscope, provided with an obturator, is then introduced. The buttocks are drawn apart and the blunt end of the obturator is laid on the anus, which is also coated with vaseline. The direction of introduction is downward and forward, and when the sphincter is well passed up under the sacral promontory. The moment the speculum clears the sphincter areas the obturator is withdrawn, then air rushes in and distends the bowel. This constitutes the fourth step in the procedure. Fifth, and last, is the inspection of the dilated bowel by light reflected from a head-mirror. Anæsthesia is usually unnecessary, since the specula are mostly of small calibre. They differ in length, the longest being 35 ctm., and this is called the sigmoidscope. Dr. Kelly states that by means of this method of examination he has plainly seen and sounded a stricture of the bowel 14 ctm. (five and a half inches) above the anus. He has also recently seen a polypus not more than 5 mm. in diameter, 10 ctm. (four inches) above the anus, and he has had occasion to examine cases diagnosed and treated for years as colitis, in which he found the rectum the seat of a chronic inflammatory trouble, limited either above or below the promontory by a perfectly sound mucosa. (Medical Record, September 7, 1895, p. 342.)

STOMACH CARCINOMA.—Lactic Acid in.

G. Klemperer (*Deutsche med. Wochenschrift*, 1895, No. 14, p. 218) has tested for lactic acid according to the method of Boas, and reaches the following conclusions:—The production of lactic acid in the stomach indicates long-continued stagnation of the contents. This occurs most frequently in carcinoma. There can be cancer of the stomach without lactic acid, just as there can be non-cancerous disease of the stomach with lactic acid. Nevertheless, Boas's test is of great practical value, though not specific. (In 15 cases of cancer of the stomach lactic acid was absent in three.) (American Journal of Medical Science, August, 1895, p. 219.)

SUMMER DIARRHŒA.

In a paper on the treatment of summer complaint, or gastro-enteritis acuta, including cholera infantum, Dr. Louis Fischer says that the treatment which has been most successful in his hands, and which is the result of personal experience, besides advice from such authorities as Professor Baginsky, of Berlin, Dr. Hugo Neumann, also of Berlin, and a great many others, is the mechanical one. If improper food is the cause of a disordered stomach, it stands to reason that the first point of the treatment should be to remove that offensive food. For that purpose we resort to mechanical treatment, consisting of washing the stomach with the ordinary normal saline solution. When a child is brought in with a history of vomiting I proceed in the following manner: I introduce a No. 10 flexible catheter, having more than one opening, by pushing it gently against the pharyngeal wall, continuing to push it down the pharynx into the œsophagus until we reach the stomach. The tube is never anointed with oil, because there is normally so much mucus present that we have nature's own lubrication. That a No. 10 tube is not too large for a child between six months and one year of age can be proven by the fact that after we attach a long rubber tube, ending in an ordinary glass irrigator, or ending in a long glass funnel, the child frequently has plenty of room to vomit the excess of water while the tube is *in situ*, so that the calibre of the tube allows ample room for nature's relief, if necessary. Having then introduced the tube, I usually allow water of the temperature of from 90° to 105° F. to gradually flow into the stomach until about one pint has entered. In using a funnel we can syphon off the contents of the stomach by lowering the funnel below the level of the stomach. Having emptied as much as we can, I raise the funnel above the child's head and again pour a pint of this normal saline solution into the stomach, and this process can be repeated until the syphoning proves the stomach fairly clean.

So much for lavage. The question, How often shall we irrigate the stomach? depends on the amount of fermentation present, on the condition of the child following this lavage, and also on the effect of the irrigation on the vomiting which existed prior to this mechanical treatment. It is, however, customary to repeat this washing either the next or two days following the first lavage. After cleansing the stomach of this offensive food, we prescribe rest, and insist on leaving the child at least two hours without giving food of any kind. I do, however, permit a small quantity of an alkaline water, either Seltzer or Vichy, Apollinaris water, or plain boiled (sterilized) water to be given. Lime-water may also be given undiluted *ad libitum*. It has been found by a great many authors, and I perfectly agree with them, that alcoholic stimulants are decidedly harmful in some cases, whereas they are beneficial in others. I do not, however, prescribe alcohol in any form when a child is brought to me with a high temperature, in a very acute inflammatory state of the mucous membranes, and where an acute catarrhal gastric or enteric fever exists. Having then prescribed rest for the stomach, the next thing is to discontinue milk in any and every form. It is surprising to find that even in nursing babies we can frequently work wonderful changes by discontinuing the nursing for one-half a day or one day, while cleansing the alimentary tract. Where severe diarrhœa exists, I first try to locate the lesion in the intestine by examining the nature and frequency of the stools, and we invariably keep a record of the number of stools passed in twenty-four hours. Where there is a lientery, *i.e.*, stools containing indigestible particles of foods, we note that the lesion comes from the stomach. I have previously referred to the presence of blood, mucus, and bile in the stools, and it is very important to judge the nature of these stools before resorting to treatment. In all diarrhœas, however, it is advisable to irrigate the rectum and colon, by placing the child on its left side, introducing a flexible rubber tube, using plenty of oil or vaseline for lubrication, having passed the sphincter and gently pushed the tube beyond the rectum into the colon, as far up as we can. At times a little difficulty is encountered, owing to the spasmodic contraction of the muscles, of the internal and external sphincters, but if a little patience is used no difficulty will be encountered, and the tube will glide easily into the colon. The method of irrigation of the bowels is the same we use in irrigating the stomach, excepting that we do not seek to syphon off the contents of the bowel, but rather to allow a pint or a quart, sometimes even two quarts of warm normal saline solution to flush the bowel, and in this way wash away as much of the fæces and offending *débris* as exist at the time within the bowel. I have frequently resorted to

flushing the bowel with cold water, but I found a much greater benefit from the use of the warm saline solution, of a temperature of about 100° F. I have also frequently washed the bowel with a solution of boracic acid, but have never seen any decided benefit caused by it. The same may be said of astringent irrigations, such as a very weak solution of nitrate of silver and also tannin. I have also injected a 1 to 10,000 solution of bichloride of mercury, and have never seen any benefit directly attributable to any of these remedies, so that I have come to use plain warm salt water and cleanse the bowel as perfectly as possible. The frequency of cleansing depends upon the improvement shown in a given case. While some cases required irrigation every day for one week, others would be so greatly improved after one rectal washing that it was not necessary to resort to it again. In all cases, however, a great deal of judgment and common-sense will do more than using every remedy or any remedy haphazard, without giving the stomach and bowel the proper rest, especially where there is a weakened state of digestion. In a great many cases I believe that my greatest benefit was derived by insisting on feeding my patients less often and with smaller quantities than heretofore. (Medical Record, July 13, 1895, p. 43.)

STOMACH.—Significance of Splashing Sounds.

Since we distinguish between dilatation and atony of the stomach, or myasthenia gastrica, the symptom of splashing sound by itself alone does not suffice to indicate dilatation, or atony, or myasthenia. The symptom, however, is important for determining the lower border of the stomach, the low position of the organ when exceptional causes, such as tumours, can be excluded. It is of diagnostic importance, as it indicates relaxation of the muscles of the stomach in cases in which it can be easily produced over a large area. If found while the stomach is free of food it is, except in instances of continuous supersecretion, a means of diagnosticating myasthenia gastrica. Barring cases of continuous supersecretion, the chemical examination of the contents of the stomach will not suffice for the diagnosis ; on the other hand, the presence of the splashing sound by itself alone is only of value as an adjuvant in diagnosticating the abnormal state of the mechanical functions of the stomach. We know that this mechanical part has the greatest and paramount influence on the further process of digestion ; if only this part is normal, other conditions lacking, digestion may go on all the same without material disadvantage. Therefore the examination for the splashing sound will be indispensable ; it will always be of supreme importance whenever we examine a patient for gastric disorder. Directly

and by itself alone the splashing sound, whenever it can be produced, is a means of diagnosis for determining the lower border and the dimensions of the stomach. Together with Dr. Einhorn, I have in the latter's clinic in the German Dispensary (medical department—men) examined 100 patients without selection for the splashing sound in accordance with the following scheme : I wrote down how long a time previously the patient had partaken of food ; then we examined the patient for the splashing sound—first, without giving him water to drink. If the symptom could not be elicited, the patient was given half a glass of water, and then examined again. We noted whether the symptom could be produced easily or with difficulty. After I had recorded the result in my table, I wrote down the diagnosis of the case from the dispensary record. In 30 cases no splashing sound could be elicited. In 6 of these food had been taken only from one-half to two hours before examination. In 2 cases no result was obtained on account of invincible tension of abdominal wall. In 1 case the symptom was found six, in 2 seven, in 1 eight, and in 1 twelve hours after eating. In 16 cases the splashing sound could be elicited as far down as or below the umbilicus. Out of these 16 cases there were only 9 in which gastric symptoms had been complained of. In 33 cases with splashing sound there was no gastric complaints. In 3 cases with grave gastric affections (2, carcinoma ventriculi ; 1, gastritis chronica) the splashing sound could not be elicited. In those 2 of carcinoma the examination had been made three and a half resp. two hours after eating. (New York Medical Journal, June 15, 1895, p. 739.)

STOMACH.—Treatment of Cancer of, by Sodium Chlorate and Aristol.

Huchard (*Journal des Practiciens*) has employed sodium chlorate in daily amounts of from 150 to 180 grains dissolved in from 5 to 7 ounces of water in divided doses, so that a continuous topical action of the salt may be maintained, not only upon the tumour but also upon the gastric mucous membrane. If larger doses are used symptoms of gastric irritation supervene, and the remedy can no longer be borne. To definitely state if this be a curative agent, many years of observation are needed ; it can, however, be stated that sodium chlorate in large doses has a very favourable action upon functional disturbances of the stomach. It increases the appetite, diminishes pain, makes the vomiting of food to disappear, and causes the hæmatemesis to cease. Aristol has been found to be inferior to sodium chlorate, but is useful, if the stage of ulceration has been reached, because it appears to possess a local action in the digestive canal when

given in pill-form, in doses of three or four, of one and one-half grain each, daily. These remedies should be used, at least, because they relieve the functional disturbances. (Medical Record, May 18, 1895, p. 623.)

THYROIDITIS.—Acute, Simple.

Holger Mygind (*Jour. of Laryngol., Rhinol. and Otology*, March, 1895) furnishes a paper on this disease, together with a description of a case. He applies the name only to acute inflammation of a previously healthy gland, which is extremely rare, in contra-distinction to acute inflammation of a previously hypertrophied thyroid gland, which is not uncommon in goitrous districts. To this latter condition he thinks the name strumitis acuta should alone be applied. He divides acute inflammation of the previously healthy thyroid gland into two, viz.—the more frequent, thyroiditis acuta suppurativa, which terminates in abscess formation; and the less frequent, thyroiditis acuta simplex. He has collected seventeen cases of this last from literature. The case observed by himself in 1893 was that of a man aged thirty-eight, with apparently phthisical and rheumatic diathesis. He contracted, on 19th August, 1893, after preliminary eczema, facial erysipelas. The temperature rose to 104 deg., and the patient became violently delirious, and required a straight jacket. There was no alcoholism. Swelling over the left thyroid lobe commenced on 1st September, and extended to the right lobe. By the 6th, the swelling was considerable, extending from the hyoid to the sternum. Patient spoke in gasps, was perfectly hoarse, coughed watery expectoration, found impossible to swallow solids and difficulty with liquids, and felt necessary to sit up in bed. (Desquamation of the face had finished on 5th September, and there was no redness of the skin or neck). No decided movement of swelling when swallowing; swelling very tender; pharynx slightly red and swollen; diffuse moist rhonchi in lungs; whole laryngeal mucosa bright red and swollen slightly; redness greatest on left side and at upper part of trachea; vocal chords slightly red; movement of right cord normal; left cord fixed in "cadaveric position" during respiration, and moves only slightly towards mid-line during phonation. By 11th September swelling had much diminished, voice was normal, larynx natural, up and well. He remained healthy as to his thyroid gland, but had an attack of rheumatic iritis, rheumatic fever being the immediate cause and the most frequently met with. Principal symptoms—dysphagia (constant), dyspnœa, cough and hoarseness (less constant). Prognosis of simple acute thyroiditis is always favourable, both as to life and as to restitution of a healthy gland. (Inter-colonial Quarterly Journal of Medicine and Surgery, August, 1895.)

AFFECTIONS OF URINARY AND GENERATIVE SYSTEMS.

BLADDER, INSPECTION OF.

Dr. Howard A. Kelly, in a paper on the diagnosis of uretereal and renal disease in women, makes the following remarks on inspection. Inspection is limited to the orifices of the ureters and notes :—(1) The appearance of the orifice and its immediate surroundings ; (2) the character of the fluid discharged from the orifice ; and (3) the character of the flow, whether absent, intermittent, or continuous. Inspection is accomplished by placing the patient in the knee-breast position, or elevating the pelvis, and introducing a cylindrical speculum, 10 millimeters in diameter. The bladder at once fills with air, and all parts of its lining mucosa are accessible upon directing into it the rays of a good light held over the sacrum, by means of a head mirror. The ureteral openings are found at the base of the bladder, about 2 cm. from the internal ureteral orifice, and at an angle of 25 to 30 degrees to the right or left. (1) The appearance of the orifice in inflammatory disease of the ureter and kidney is often characteristic ; being deeply injected, or pouting, mammillated, or swollen and œdematous. A small area of ulceration may sometimes be seen in the bladder at the orifice. In tubercular cases, when the disease descends from the kidney down to the bladder, the first infection is apt to be distributed about the ureteral orifice over a triangular area with its apex at the ureter. The explanation is obvious ; this is the area which comes first into contact with the urine from the infected side in its concentrated form, before dilution with the opposite urine and before distribution over the wide area of the bladder. (2) The character of the fluid as it is seen issuing from the ureteral orifice may be sufficient in itself to settle the diagnosis and determine the treatment, but before reaching a decision it is necessary to examine both ureteral orifices, watching them for a few minutes, until there is an escape of fluid. If no discharge takes place from one side, it may sometimes be started, when there is a renal tumour, by bimanual compression of the tumour in the flanks. I call in this connection cases of hæmaturia in which bloody urine was seen flowing out from one side while the other discharged clear urine. In one case there was a layer of blood over the floor of the bladder, and the first and natural suggestion was that the vesical mucosa was the source of the hemorrhage. But upon cleansing it with a little pledget of cotton, the mucosa was discovered to be normal. Both ureteral orifices were surrounded with blood, but on one side the flow

of normal urine kept clear a little path of uncovered mucosa, immediately in front of the opening, showing that that side was sound. In a case brought to me by Dr. H. B. Marriott of Battleboro, North Carolina, we saw thick pure pus issuing from the right ureter, and limpid urine from the left. I operated and removed a large number of stones from the right kidney. I have repeated this experience many times. (3) Normally, with the patient in the knee-breast position, the urine flows in clear jets, spurting out and often down the speculum. If there is a prolonged delay in the discharge from one side, there must be some stoppage there. When the discharge is purulent, it simply oozes from the opening and may continue to run out for a considerable time without intermission. I would call attention to the important fact that, with the patient in the knee-breast position, the fluid escaping from the ureters can be collected for microscopic and chemic examinations, as it trickles down the speculum, without catheterizing either ureter.—[The author then describes his method of catheterising the ureters and pelvis of the kidney.] (Journal of the American Medical Association, August 17, 1895, p. 272.)

BLADDER, RUPTURE OF.

The diagnosis of rupture of the bladder is by no means always as easy as might be supposed, and a good deal of ingenuity has been expended in devising means of deciding whether or not the lesion is one which would justify the surgeon in opening the abdomen in order to repair a laceration. A small rupture may be temporarily occluded by a plug of torn mucous membrane, or, on the other hand, a knuckle of intestine may be forced into the hole, thus preventing the escape of fluid. One method of ascertaining the fact is to inject the bladder with a known quantity of fluid, the viscus having previously been emptied by catheterisation. By carefully measuring the quantity of fluid injected under pressure and the quantity which can be withdrawn, a tolerably reliable estimate can be formed of the likelihood of the presence of an actual tear. This test has, however, not given invariably satisfactory results, and Mr. Walsham has invented a more delicate plan, which consists of the injection of air. In the event of a laceration being present, the escape of air into the peritoneal cavity forthwith determines marked symptoms of collapse which amply warrant the surgeon in taking steps to repair the damage. As the life of the patient depends in large measure on the diagnosis being speedily arrived at, it is of the greatest importance that this plan should be generally known. (Medical Press and Circular, June 19, 1895, p. 656.)

BLENORRHŒA.—New Treatment of.

In the *Medical Press and Circular*, April 24, 1895, their French correspondent gives a translation of a lecture under this title by Dr. Routier. He first makes sure of his diagnosis by placing a drop of the pus on a glass, lets it dry, colours with methylene blue wash, when with the addition of one drop of glycerine the preparatiou is ready. The gonococcus, if it be present, has the form of a grain of coffee, and is easily distinguished from the pus cells. It is the bacillus that has to be destroyed, and he employs antiseptics for this purpose. He employs permanganate of potash at a strength of 1-2000; a stronger solution might cause inflammation of the canal. He does not interfere in the acute stage. If the virus has only attacked the anterior portion of the canal, large irrigations, without forcing the sphincter, will be sufficient; but if the whole of the urethra is affected, urethro-vesical irrigations must be made. For irrigating, a reservoir holding about two quarts is filled with the solution of permanganate of potash, warm, if possible. The reservoir is placed about five feet above the patient, with an india-rubber tube attached to it having a glass nozzle. The irrigation is then made by inserting the cannula into the meatus, and the liquid flows in until it reaches the sphincter, when it returns and escapes, and so washes out the anterior portion of the urethra. To attain the posterior portion the fingers press the tips of the meatus against the cannula, and the liquid not being able to return forces the sphincter and penetrates the bladder. As soon as the patient feels the want to urinate the current is turned off, and the man recommended to press on the penis from time to time in order to stop the flow, by which means the liquid penetrates into all the glands and its action is increased. A catheter can be used, and the nozzle fixed to it if the patient is nervous. One *séance* a day is sufficient. At the end of eight days the patient will be cured. (Dr. Cadell's Periscope in the Edinburgh Medical Journal, July, 1895, p. 92.)

BRIGHT'S DISEASE.—Skin Affections in.

The only cutaneous disorder hitherto generally recognised as occurring in Bright's disease is the Erythema leve (not læve) of Willan. It is a superficial dermatitis which owes its characteristic appearance to the fact that it appears on the surface of skin made thin by dropsy. There are, however, other forms of dermatitis which not unfrequently occur in the course of chronic Bright's disease. (1) There is a bright red diffused rash which appears chiefly on the trunk, less often on the neck, arms, and thighs, and very seldom on the face, hands, or feet. It is distinguished from the somewhat similar rash

produced by natural or artificial diaphoresis, by its locality, by the absence of sudamina, and by its appearing when no hot-air baths or other means have been used to produce sweating, and when the skin is harsh and dry. It does not, as a rule, either itch or smart, and only lasts a few days. I have most often seen this "roseolous" rash in cases of chronic tubal nephritis. (2) There is a papular eruption, with large discrete rather dark red pimples seated on a dry, rough, and sometimes scaly surface. This I have most often seen on the outer side of the thighs and legs, the shoulders and extensor surface of the forearms, but it may also affect the loins and the abdomen. I have never seen this "lichenous" on the face, or on the hands and feet. (3) Apart from the mere coincidence of eczema with Bright's disease, there may be observed in some cases a moist dermatitis resembling eczema in its aspect, but occupying the neck, the arms, or the legs, without affecting the flexures of the joints, the face, or the ears, without the irritation commonly present, and without preceding attacks of eczema. (4) On two occasions I have seen a very extensive and profuse dermatitis closely resembling the universal exfoliative dermatitis of Wilson, very red, very scaly, occupying the scalp, palms, soles, and genitals, as well as the trunk, face, and limbs. It has come on after the symptoms of Bright's disease have appeared, in cases of chronic interstitial nephritis with little dropsy, and with cardio-vascular changes already apparent. (From a paper by Dr. Pye-Smith in the British Journal of Dermatology, September, 1895, p. 284.)

GONOCOCCUS, THE.

The gonococcus of Neisser undoubtedly causes true gonorrhœa, but to make a certain diagnosis of this organism it must be found in considerable numbers, and these arranged in groups within the leucocytes. They must also decolourise very readily by Gram's method of staining. In cases where but few scattering diplococci are found, and most of those outside the cells with other bacteria, a diagnosis of gonorrhœa is not justifiable ; particularly is this the case in the vulvo-vaginites of children. The following is Neisser's method of staining the gonococcus :—(1) Stain cover-glass with saturated alcoholic solution of eosine, thirty to forty-five seconds ; (2) drain off excess with filter paper ; (3) stain the unwashed cover-glass with saturated aqueous solution of methylene blue ; (4) drain off excess with filter paper ; (5) wash, dry, and mount. The result shows outline of cells distinctly, with their protoplasm stained pink, the nuclei blue, and the bacteria a darker blue. Gram's reaction should be always used to make diagnosis doubly sure. (From Dr. H. D. Chadwick's paper in the Boston Medical and Surgical Journal, October 10, 1895, p. 371.)

INFLUENZA, RENAL AFFECTIONS FOLLOWING.

Dr. A. Jacobi, before the Association of American Physicians, said :—I find renal trouble very frequently after influenza. It has appeared to me that the form of nephritis that we see after influenza is the same that we find after diphtheria and after typhoid fever, and, therefore, I believe that it must be due to the same cause, to the toxines of the different germs giving rise to these diseases. The microscopical appearances of such a urine are about as follows :—Specific gravity, say from 1·014 to 1·022, or even 1·026, of small amount when the case is recent, a very small amount of blood, hyaline casts, hyaline casts studded with granular matter or with small epithelium and granular casts of the thin, fine variety. These characteristics I have found, not only after influenza, but also after typhoid and after diphtheria. They are contrary to what we find after scarlatina, which has its own peculiar form of nephritis. The large majority of these cases get well, and get well speedily, that is within two or three weeks, but sometimes taking two or three months. I have also seen quite a number of cases that became chronic. (Boston Medical and Surgical Journal, June 13, 1895, p. 600.)

PROSTATE, CASTRATION IN HYPERTROPHY OF.

It would appear from the reports thus far made that the experimental stage of this operation has long since passed, and that the increasing favourable evidence places it upon a legitimately established basis. And yet it must still be considered as *sub judice*, for it is not yet established that all cases of obstructive enlargement are thereby benefited. No operation or no procedure is a cure-all, and this will scarcely prove to be an exception. It is apparent that the cases must be carefully selected, and must be those of true hypertrophy, not complicated with other forms of obstructive disease. Stone in the bladder, however, would not necessarily lessen the usefulness of the operation when accompanying true hypertrophy, for after the enlargement had subsided in consequence of the operation, the lithotrite could be more easily introduced into the bladder and lithotrity could be practised. This has been done in one case, at least, by White. Too much should not be promised the patient in the line of insuring freedom from the catheter life, for emancipation from it depends largely upon the tonicity of the bladder, and voluntary micturition cannot be promised where pronounced atony exists. The operation is of unquestioned value in diminishing the size of the prostate, whether of a soft adenomatous character or of a hard, tough,

fibro-myomatous type. It relieves cystitis consequent on microbic infection ; it diminishes pain and relieves distress. It lessens the frequency and difficulty of catheterisation. I confess I am at a loss and cannot understand why in many of the cases reported the shrinkage of the prostate, normal micturition, and a subsidence of the active inflammatory symptoms should so quickly ensue, unless, indeed, in these particular instances, the enlargement is, in part, an inflammatory exudate, added to the already existing prostatic overgrowth. It is said that glandular tissue predominates in the hypertrophied middle lobe and that its enlargement is of an adenomatous rather than of a fibro-myomatous character ; thus, perhaps, accounting for its rapid shrinking. That the operation has a legitimate field there can be but little doubt, and in properly selected cases will prove a great boon to those suffering from conditions depending upon obstructive hypertrophy of this gland. (From a paper by Dr. F. C. Thayer, in the Boston Medical and Surgical Journal, August 22, 1895, p. 182.)

SUGAR IN THE URINE.—A Ready Quantitative Test.

It is often desirable to obtain an approximately accurate idea of the actual amount of sugar present in a given specimen of urine under conditions which preclude recourse to the ordinary laboratory routine. Dr. Paulus, of Davos, suggests a plan which, if not strictly accurate, is extremely simple and sufficiently reliable for use by the busy practitioners. Two cubic centimetres of Fehling's ordinary solution are poured into a test tube and heated to boiling point over a spirit lamp in the usual way. That having been done the urine is introduced drop by drop into the boiling reagent until the characteristic change of colour takes place. The exact number of drops of urine required to determine the yellow colouration being known, all we have to do is to remember that two cubic centimetres of Fehling's solution require for reduction exactly one-tenth of a centigramme of glucose. A cubic centimetre of urine represents, roughly speaking, 20 drops, and if we divide the number 20 by the number of drops of urine required to effect the reduction of the reagent, we shall obtain the quantity of sugar per 100 grammes of urine. Thus, if 10 drops of urine have been used, $20 : 10 = 2$, which, being interpreted, signifies two grammes per 100 grammes of urine. By this simple procedure it is possible to estimate forthwith the actual output of sugar, and to calculate the effects of a given diet. All the apparatus required is a test tube, a spirit lamp, a graduated dropper and a small quantity of Fehling's solution. (Medical Press and Circular, September 11, 1895, p. 268.)

URINE.—The Filtration of a Small Quantity of.

Dr. L. F. Bishop adopts the following plan :—A small quantity of the cloudy urine is placed in a test tube, the mouth of the test-tube plugged with cotton with a moderate degree of firmness. A second test-tube is placed with its mouth to the first. The position of the tubes is now reversed so that the one with the urine is bottom upward. The upper tube is now carefully and gently heated over the flame of a Bunsen burner or alcohol flame, and the expansion of the air above the urine immediately forces it through the cotton plug, and the filtered urine collects in the lower tube. In this we imitate to a degree the rapid-filtering apparatus of laboratories, but use pressure above the fluid to be filtered instead of an air-exhaust below. (Boston Medical and Surgical Journal, April 25, 1895, p. 405.)

GENERAL SURGERY, AND AFFECTIONS OF THE BONES, JOINTS, &c.

ABDOMINAL INJURIES.

Another of the unsettled questions in abdominal surgery is the treatment of intra-abdominal lesions, the fatality of which is notorious. Here again we have the usual divergence of opinion, largely owing to the fact that a correct diagnosis is extremely difficult, for in these cases we find comparatively slight external evidences of injury, although the general condition of the patient is suggestive of a serious internal lesion. Deaver thinks that the majority of these cases demand abdominal section ; although, except in extreme cases, he would not advise it unless the diagnosis was tolerably certain. Chaput, Berger, and Michaux are also in favour of early intervention. Michaux regards it as certain that an exploratory laparotomy should be at once undertaken in severe contusions of the abdomen. He insists that good results can only be ensured by early and rapid operation. Of six patients on whom he has operated within the first twenty-four hours none died ; but of four cases, in which operation was delayed to the twenty-third and twenty-sixth hour, third and seventeenth day respectively, two died. Sorge writes in a similar strain, and refers to fourteen cases of abdominal injury (stabs, gun-shot wounds, contusions) in which he performed laparotomy as soon as possible, and of whom nine recovered. Battle is of opinion that operation should be resorted to if the shock is considerable or increasing, and associated with a large or increasing amount of blood in the peritoneal cavity. In favour of a more expectant plan of treatment we find Berger, Manley, and Chaput. The last-mentioned thinks that we should always abstain from intervention in cases

of severe shock, unless there are such distinct symptoms of hemorrhage as to demand operation ; but he considers that an operation is indicated by a previously existing shock, accompanied by abdominal pain, retraction of the abdomen, nausea, and bilious vomiting. Delorme refers to nine cases of severe contusion of the antero-lateral walls, of which two only were subjected to operation: the other seven spontaneously recovered. Mr. Bryant recorded twenty-seven cases of severe abdominal contusion treated on the expectant plan (for it was before abdominal operations were thought of in these cases), and all recovered except one. In summing up these various opinions, it seems pretty clear that except in very severe cases exploratory operations are unjustifiable. It is well-known that blows on the epigastrium are capable of producing the most severe symptoms, without causing any distinct lesion ; and the knowledge of this fact alone should make us cautious in too hastily deciding to operate in the presence of mere shock. Where there are symptoms of severe hemorrhage or laceration of a viscus, our course is clearly to operate without delay ; but in more dubious cases we can afford to wait and see whether the symptoms are improving or getting worse—a point which can generally be decided under twenty-four hours—and then plan our treatment accordingly. Manley truly observes of these cases : "Laparotomy, serious as it is and always must be . . . . does occasionally offer the only possible hope of saving life, and for such should be recommended." (Mr. James Swain, in the Bristol Medico-Chirurgical Journal, September, 1895, p. 206).

CARBOLIC ACID COMPRESSES TO THE SKIN INDUCING COMA.

In *The Lancet* for June 1, Mr. R. Clement Lucas and Mr. W. Arbuthnot Lane, of London, report two such cases in boys aged 15 years and 6½ years respectively, which have recently come under their observation in Guy's Hospital. They appeared to the authors to be of such rarity and importance as to justify their early publication, and they published them chiefly with the object of rendering their experience of service to others. It had long been their practice to apply a compress of lint soaked in a five-per-cent. solution of carbolic acid in water for a variable time before an operation. Many hundreds of patients must thus have been prepared, but, with the exception of these two, the authors know of none that have presented symptoms of such serious import:—With regard to the treatment, says Mr. Lucas, the first indication is to thoroughly wash the skin to which the carbolic lotion has been applied to prevent any further absorption, and next to treat the collapse. Hot bottles and warm blankets to the surface, with

warm brandy enemata and the subcutaneous injection of ether, are the best means for this purpose. Strychnine or atropine may also be of service. In spite of the alarming and persistent nature of the symptoms, says Mr. Lucas, their experience would lead them to give a favourable prognosis if the cause were recognised sufficiently and means at once taken to prevent any further absorption. That the absorption was by the skin in both cases, there can be no doubt, he says, for in the first case there were only three small sinuses open and in the second case the skin was unbroken. (New York Medical Journal, June 22, 1895, p. 796.)

COCAINE POISONING.

Schede (*Münch. med. Woch.*, May 7, 1895) has reported at a recent meeting of the Hamburg Medical Society a case of cocaine poisoning by the injection of 2 grammes of a 10 per cent. solution of this drug into the urethra. Cyanosis, dilatation of the pupils, and deep coma supervened, followed by trismus and tetanus-like convulsions. Artificial respiration was begun, and the subcutaneous injection of ether and camphor, and the inhalation of nitrite of amyl did not affect the symptoms. After twenty-five minutes Cheyne-Stokes respiration supervened, and the cyanosis increased. Venesection produced no improvement. The inhalation of oxygen and intravenous injection of 650 grammes of salt solution finally brought the patient round, the recovery being attended by transitory convulsions, and three hours elapsing before complete recovery of consciousness. The lesson of this rather severe experience is the same as that of the case noted in the *Journal* of April 18, in which death resulted from a urethral injection of 6 grammes of a 5 per cent. solution, namely, to employ weaker solutions, and exercise greater care as to the amount employed, above all in urethral injections. Although the amount of the solution employed in this last case was not excessive, the strength was certainly unnecessarily great. A peculiar susceptibility to the effects of cocaine may exist when least expected, and the knowledge that it may exist should keep us always on our guard in the use of this excellent but poisonous drug. (Boston Medical and Surgical Journal, June 6, 1895, p. 582.)

FRACTURED PATELLAR.—Treatment of.

[In a comparative study of this subject, Mr. A. Carless thus concludes:]

For practical purposes they may be grouped under three headings:—(*a*) Those in which apposition is effected by mechanical appliances alone with no breach of surface; (*b*) those in which some subcutaneous operation or method of suturing is

adopted; and (*c*) the open method of wiring. The results gained in all appear to be satisfactory, provided that sufficient time is given to enable the fibrous tissue, which forms the bond of union in most of the cases where operation is not undertaken, to consolidate. In the first group of methods at least twelve months must be allowed for this to occur; in the second group the period of treatment varies from two to twelve months; whilst by the open operation a successful issue is usually attained in six or eight weeks. In cases where the skin is incised and the articulation opened a certain element of risk is always introduced; and, before deciding on such treatment, this must not be overlooked. If the patient can afford the time, there is really no need to expose him even to the slight risk of a subcutaneous or open operation; although, in discussing this subject, it should be remembered that bad results are met with even when no operation is undertaken, leaving the patient with a weak and practically useless limb. Where, however, time is of value, as is the case with the majority of working men, it is usually desirable to expedite matters by surgical interference. One fails, however, to realise the advantage of the subcutaneous methods, seeing that they also are not devoid of risk; and if it is justifiable to incur any risk, that method should be adopted which promises the maximum of benefit from it. In the hands of those who are well versed in the minutiæ of antiseptic surgery, there is really no more danger from the open operation than from those so-called "subcutaneous" plans which almost all involve puncture of the joint, whilst the results attained by wiring are more certain, and, without doubt, effected with much less sacrifice of time. (The Practitioner, June, 1895, p. 528.)

FRACTURES OF LOWER EXTREMITIES.—Ambulant Treatment of.

At the German Surgical Congress, von Bardeleben gave the results of the treatment of fractures of the leg at the Charité in Berlin since his last report, made in 1894. Since that time 74 cases of fracture of the lower extremity had been treated. Of the 46 fractures of the leg 39 were treated with the *Gehverband*. Of 4 fractures of the patella, 2 were treated with and 2 without walking apparatus. Of 23 fractures of the thigh 16 received the ambulant treatment. In all, then, 181 fractures of the lower extremity have received the ambulant treatment at the Charité: 135 fractures of the leg, 7 fractures of the patella, 38 fractures of the thigh, and 1 compound fracture of the thigh and leg on the same side. This method of treatment has a most favourable influence on the general condition of the patients. The time required for consolidation varies between thirty-eight and nineteen days, according to the

nature of the fracture; in a single case of compound fracture seventy-eight days were necessary to complete consolidation. The ambulant treatment, according to von Bardeleben, is a distinct advance, provided careful supervision is given to the cases while it is in progress. (Boston Medical and Surgical Journal, June 6, 1895, p. 582.)

GLYCERINE INTOXICATION AFTER INJECTIONS of IODOFORM and GLYCERINE. By Dr. L. Schellenberg (*Arch. f. klin Chir.*, Bd. xlix., H. 2 Since 1866, when Husemann found glycerine to have a poisonous action on frogs, we have increasing evidence of its toxic action. The symptoms vary with the amount of the dose, but in general they consist of frequent pulse, rise of temperature, paralysis of the muscles, congestion of the kidneys and hæmoglobinuria. Most of the cases reported have been caused by injecting glycerine into the womb to bring on labour. The author has observed 21 cases of glycerine-poisoning in children in whom iodoform and glycerine had been injected for tubercular disease. The cases can be divided into the following groups according to their clinical symptoms :—(1) *Mild Cases.*—Several hours after the injection a slight rise of temperature occurs, the pulse becomes rapid, and the patients have a little pain at the site of the puncture. The urine is high coloured, containing a little hæmoglobin. No blood-cells, casts, or renal epithelium present. There is a little albuminuria which continues longer than the hæmoglobinuria. After about twenty-four hours the symptoms disappear and the urine returns to normal. (2) *Severe Cases.*—The temperature and pulse are more affected than in the previous cases. The patients have a peculiar pale, sallow complexion, and present nervous symptoms which make one think of meningitis. The urine is of a dark-brown colour and deposits a copious dark sediment in which are found renal epithelium casts covered with coloured granules and detritus. The hæmoglobinuria disappears after fifty-six hours or before. There are no blood-cells present. (3) *Fatal Cases.*—One case of this kind was observed. The symptoms were similar to those of the previous group. The patient went into collapse soon after the injection and died on the third day. The autopsy showed acute parenchmatous nephritis and œdema of the meninges. The kidneys were filled with hæmoglobin. Undoubtedly, the iodoform produced or augmented some of the symptoms in the severe cases, but they are not to be looked upon as cases of iodoform-poisoning, as the kidneys were the organs most affected, and iodoform produces no kidney lesion; moreover, iodine could not be detected in the urine in some of the mild cases, and when it was present it usually appeared some time

after the hæmoglobinuria. It is not improbable that the acute nephritis caused by the glycerine prevents the excretion of the iodoform and thus augments its toxic effects. The conclusions reached are as follows :—(1) The danger of glycerine-poisoning increases with the quantity of the drug, the tissue, and pressure. Children are poisoned by relatively smaller quantities than adults. (2) A dose of 10 cubic centimetres in children and 20 cubic centimetres in adults is almost always well borne. (3) Poisoning is easily produced by parenchymatous injections. (4) In cold abscesses with a pyogenic membrane three or four times as much can be injected as is permissible in other parts. (5) Fresh wounds and large joints are especially liable to absorb the drug. It has been proposed to give up the use of glycerine, substituting olive oil. (Annals of Surgery, July, 1895, p. 128.)

INFILTRATION METHOD OF LOCAL ANÆSTHESIA IN GENITO-URINARY SURGERY.

Dr. Lewis read a paper on this subject. He stated that in July, 1894, Dr. Schleich, at the German Congress of Surgeons, had detailed a new method of producing local anæsthesia by the use of intracutaneous injections of various drugs. Subsequently, in a monograph entitled *Schmerzlose Operationen*, the author had treated the subject more extensively, and given the results of its use in some 3,000 operations, minor and major. The principle of the method consisted in injecting intracutaneously certain solutions, and dissipating the sensibility of the peripheral nerves by the pressure of the infiltrated fluid, by the anæmia which it caused, and by the comparatively low temperature at which it was injected. The effects were produced by the fluid itself, rather than by any particular drug which it might contain. The drugs used were of only incidental importance. In his various surgical procedures Dr. Schleich had found the following solution, of graded strength, to answer all purposes :—Cocaine hydrochloride, 3 grains ; morphine hydrochloride, $\frac{1}{3}$ of a grain ; sodium chloride, 3 grains ; distilled water, 3 ounces. Mix, sterilise, and add 3 drops of a 5 per cent. solution of carbolic acid. Two other solutions were used, but they were practically the same, the only differences being that in one the amount of cocaine used was reduced to a grain and a half, while in the other only a sixth of a grain of cocaine was employed and a twelfth of a grain of morphine. (New York Medical Journal, August 31, 1895, p. 177.)

SKIN GRAFTING.

Mr. Miles communicated to the Medico-Chirurgical Society of Edinburgh a short digest of his paper on "Skin-grafting from

the Lower Animals." He has used dogs, rabbits, kittens, and frogs as the donors of skin, the best results having been obtained from dogs, and the least satisfactory from frogs. Young animals are always used. The ulcer is prepared, as in other skin-grafting procedures, by being made aseptic, and by being brought into a healthy state as regards its granulations, which must be neither redundant nor œdematous. The grafts are placed on the surface of the granulations without previous scraping. The preparation of the grafts consists in killing the animal, and, after shaving its abdomen, dissecting up the whole skin, leaving behind the subcutaneous tissue. It is floated out in warm boracic lotion, and cut into pieces varying in size according to the raw surface to be covered in (from 1 in. by ½ in. to 6 in. by 1 in.). These are firmly pressed into the granulating surface, close up to the margins, and edge to edge. A dressing of protective gauze and wool, with a splint, is then applied. The after-dressing is the most important part of the proceeding. It should be left undisturbed for at least forty-eight or seventy-two hours, and then the dressing should be changed with the utmost gentleness and caution. Subsequent dressings may be necessary every day, or every second day, according to circumstances. Apparent sloughing of a graft is occasionally observed. It is due to the superficial layers of the skin being thrown off, the more vital deep layers living and growing. When pustules form on a recently grafted surface they should be punctured at once, and covered with an antiseptic dressing. Granulations sometimes grow up through grafts, destroying them. These are best removed with a sharp spoon. In all cases special precautions are necessary to prevent movement of parts until the grafts have fairly established themselves. (Clinical Sketches, October, 1895, p. 109.)

SUPPURATION, ASEPTIC TREATMENT OF.

Dr. H. Zeidler, St. Petersburg (*Centralblatt für Chirurgie*, April 6, 1895). The question as to the desirability of attempting to disinfect wounds which are suppurating, or foci of localised or diffuse suppurative cellulitis, is here dealt with, the author arguing strongly in favour of asepsis rather than of antisepsis. His practice for the last decade or more has been influenced by the well-known facts as to the difficulty or impossibility of destroying organisms when once they have gained access to the interior of wounds, which facts have been especially emphasised of late by Schimmelbusch. In 1889 he recorded about 100 cases treated without antiseptics in the most satisfactory manner, and his observations have now swelled up to many hundreds. His method of treatment is as follows :— The field of operation is prepared as usual; the wound is

thoroughly opened up and all tissues infiltrated with pus carefully dissected out. It is then wiped out with sterilised gauze, and if necessary irrigated with a 6 per cent. saline solution. It is lightly but carefully packed with sterilised gauze, over which is placed another layer of gauze covered by wool and firmly bandaged on. Zeidler is greatly in favour of dry rather than of wet dressings, believing that thereby secretion is diminished and the formation of healthy granulations assisted. Neither iodoform nor any of the usual antiseptic reagents appear to his mind to have any salutary influence on the course of the case, and, indeed, he considers that they are really harmful. The dressing is often left on for eight days without being changed, and he has never noticed any objectionable smell arising from decomposition of the secretion. Should the effusion be great and soak through the outer layers, this may be removed and replaced without touching the deeper parts. Great importance is laid on the use of a thoroughly absorbent material for the dressing. (The Practitioner, June, 1895, p. 569.)

SYPHILITIC NEOPLASM AND OTHER NEW GROWTHS.—Distinction Between.

At the recent meeting of the German Medical Congress, Esmarch (*Wiener medizinische Blätter*, 1895, No. 26, p. 413) dwelt upon the peculiarities of syphilitic neoplasms, of which he had recently seen some forty. The cases belonging in this category usually present other manifestations of past or present syphilis, or give a history of that disease in parents or brothers or sisters. All tumors developing in the voluntary muscles should be viewed with suspicion. These occur most commonly in the muscles that flex and extend the head, in the abdominal muscles, in those of the back and of the legs, and also in the tongue. Especially suspicious are those growths that recur at regular intervals after extirpation, and which may be dispersed by the administration of potassium iodide in large doses. Likewise those growths should be viewed with doubt that disappear after the internal administration of arsenic, and also after attacks of erysipelas or the injection of the toxins of that disease. The mode of growth is not distinctive, some attaining considerable size rapidly, particularly after traumatism, while others grow slowly ; neither is the consistency of the growth characteristic. Anatomically, syphilitic tumours present areas of fatty degeneration in the midst of grayish-red granulation-tissue. In case of suppuration the tumour should be removed surgically. Some syphilomata are not clearly distinguishable, even with the microscope, from round-cell or spindle-cell sarcomata. (Medical News, August 10, 1895, p. 156.)

AFFECTIONS OF THE SKIN, &c.

ACNE TREATMENT.

In the treatment of acne, Schutz recommends the use of water to wash with as hot as can be borne, for cold water, if employed freely, hardens the palmitine and stearine of the sebum, favours its retention, and locks up in it the pus-cocci accidentally present. Some cases do not do with washing; in such the face should be cleansed daily with the best American vaseline. In other cases where fats are not well borne, he prescribes a powder of equal parts of refined sulphur, sulphide of calcium, and phosphate of lime. This, mixed with a little water and laid thickly on any painful acne pustules at night, is often very efficacious. The rest of the face should be dusted with simple powder. Pustules are only to be punctured when fully ripe, otherwise inflammation is set up and fresh foci arise. When the disease is extensive, applications of mercury and carbolic gutta-percha plaster-muslin, alternating with hot compresses of a two per cent. solution of pure carbonate of potass. (Arch. f. Dermat und Syph., February, 1895. Dr. Jamieson's periscope, Edinburgh Medical Journal, August, 1895, p. 182.)

ARGYRIA.

Dr. H. C. Tweedy exhibited a case of argyria. The patient, who was a man 77 years of age, had been admitted to Madam Steevens' Hospital in 1871, with symptoms of locomotor ataxy, for which he was put on a course of nitrate of silver. He was again an inmate of the hospital in 1873, 1876, and 1882, on the last of which occasions the discoloration of the skin was plainly manifested, he having continued the use of the nitrate of silver during that long period. His ataxic symptoms had completely disappeared in 1882, nor have they ever returned to any appreciable extent up to the present time. Dr. Tweedy drew attention to the following facts regarding this now somewhat rare condition:—(1) That reduction of the silver salts administered takes place in the stomach and afterwards in the intestinal canal; (2) the reduced silver finds its way to the organs of the body through the lymphatic passages; (3) it is not eliminated by the urinary organs or by the intestines; (4) it does not, as a rule, produce any material effect upon the health. Some sections of the skin of the under-eyelid, prepared by Dr. Earl, were upon exhibition, as well as the patient himself, whose skin was of a uniform dark slaty blue, which was most intense upon the face and neck. The sections showed with great clearness the deposit of the metal in the connective tissue, in the form of black and dark-brown granules. Dr. Tweedy concluded by remarking that there could be no

doubt that the nitrate of silver had in this case produced very marked and beneficial results, for not only had the ataxic symptoms completely disappeared for the past ten years, but during the early progress of the case each time the symptoms reappeared they were promptly relieved by the nitrate of silver; and as the case had been practically under observation for 23 years, this had happened with too great regularity to have been merely co-incidental. (Dublin Journal of Medical Science, April, 1895, p. 346.)

ECZEMA OF THE NAILS.

The patient was a young women, a barmaid by occupation, in whom the roots of all the nails of the left hand were the seat of chronic inflammation. The nails showed transverse ridges, a condition which was always present in connection with affections at the roots. The effects of the disease upon the nails were somewhat analogous to those of sycosis upon the hair. When the hair sheaths became inflamed the hair became loosened, and similarly the nails in this case were loosened. It was quite possible to push a brush between the soft structures above the nail and the nail itself. The patient was quite free from any other skin affection. The question, however, of the etiology was an interesting one in this case. There was no doubt that the disease secreted a contagious matter, and by this means spread from nail to nail. The nature of the occupation was clearly the most important element in the production of the disease. The patient's hand was constantly in contact with beer and cold water, and it was important to note that while this was the case with the left, or affected hand, the nails of the right hand, which never became thus saturated, were quite healthy. A similar class of cases was those of so-called "potboy's eczema," and in those instances also the contagious element was well displayed. Attention was drawn to the fact that in the case of the teeth there was an analogous affection, namely, suppuration around the fangs. The disease was a serious one, well known to dentists, inasmuch as it might lead to the loss of all the teeth. It spread by means of its contagious matter from one tooth to another, and the only way to check it was to keep the mouth as far as possible thoroughly disinfected. A curious feature about this affection was that it occurred in perfectly healthy persons. (Mr. Jonathan Hutchinson, in the Medical Press and Circular, July 3, 1895, p. 2.)

HYDRO GESTATIONIS.

Dr. Ninian Falkiner showed a case of herpes gestationis. The woman, aged 38, has been married twice, and has had six

children. She is now in the third month of her seventh pregnancy, and the third attack of the disease. The eruption commences at the end of the third month on the back of the wrists, and continues advancing until it covers all parts of the body; after delivery it disappears in about six weeks. This is the third time that Dr. Falkiner attended her. She states that it comes on only when she is carrying a male child. The President said that, through the kindness of Dr. Falkiner, he had seen the case a year ago. She was pregnant at the time. He had no doubt that it was a case of hydro gestationis. He was not aware of any other cases of the same kind seen in Dublin except one by himself at the Adelaide Hospital dispensary. (Medical Press and Circular, May 1, 1895, p. 462.)

PEDICULOSIS VESTIMENTORUM.

Dr. Allan Jamieson observes that the management of patients affected with the pediculus vestimentorum in hospital is comparatively easy. With a thorough scrub in a warm bath for themselves, while their clothes are subjected to disinfection, by boiling such as can be submitted to that process, or even better perhaps by washing them in water to which some paraffin oil has been added, and by exposure to superheated steam in the case of outer garments, these parasites with their ova are pretty well disposed of, for the time at least. It is far otherwise, however, in private practice. The diagnosis is not by any means easy in all instances. The patient, whose complaint is of pruritus or urticaria, has very commonly changed his linen before presenting himself to the inspection of the doctor, and in ordinary circumstances little more can be done than to take a rapid glance at the folds of the shirt near the neck. A closer inspection might be resented, and any hint of our suspicions would vex, perhaps shock, our patient. In such cases, too, there are possibly but few pediculi. Since many examples of apparent pruritus senilis own a parasitic origin, it is important to exclude this possibility. The ordinary rules as to the localities specially involved are to be followed, but occasionally if lanugo hairs are still present the ova may be found adhering to them. The patient will offer no objection to a careful examination of his skin, and with a lense the nits may be discovered attached to the fine hairs of the back. I have found them there in young subjects, and believe that this, and not always a re-infection, explains the intractability of pediculosis in some individuals. But in many old and atrophic skins there are no such hairs, and then we are forced to fall back for confirmation on secondary lesions, due to scratching. Any suspicion of alcoholism favours the view that the itching is connected with pediculi, as those who indulge to excess in spiritous liquors

or beer are peculiarly predisposed to become infested by these insects. Their careless habits as to cleanliness, added to a degree of insensitiveness of the integument, the result of such potations, render them indifferent, so that a permanent cure is particularly difficult in them. This same cutaneous anæsthesia may be existent to a certain degree in the old, even though they make complaint of pruritus. In pediculosis corporis no remedy acts so promptly and efficaciously as petroleum, but there is an awkwardness in applying it to the general surface of the body. Incorporated in a soap, such as Calvert's Petrofenic soap, which contains carbolic acid as well as paraffin oil, it can be employed to wash the skin, the lather being allowed to dry on. In this way the eggs which have been mentioned as sometimes attached to the downy hairs are killed. The insects themselves live in the body-clothes, and deposit most of their ova there. It is thus essential that our main efforts should be perseveringly directed against them. This can be accomplished by taking advantage of the property of sulphur of slowly subliming and becoming oxidised into sulphurous acid at the temperature of the body. A piece of roll sulphur, the size of a pigeon's or bantam's egg, is enclosed in a porous bag made of muslin or canvas, and worn next the skin, day and night. The sulphurous fumes imperceptibly impregnate the clothes, and render them unsuitable for the existence of the parasites. We can thus rid our patients of a source of annoyance without communicating to them our ideas as to the cause ; indeed, we can thus quietly put to the test the accuracy of our opinion. The plan suggested has proved of service to me in several instances. (British Journal of Dermatology, August, 1895, p. 248.)

PEMPHIGUS, ETIOLOGY OF ACUTE.

Mr. George Pernet read a paper on this subject, founding his remarks upon a fatal case of acute pemphigus which had recently come under his observation, and stating that he had been able to collect four other very similar cases, all like his own, occurring in young journeymen butchers. In three, the disease was fatal in from ten to twenty-eight days. In two cases, one of which recovered, there was a distinct history of a wound, inflicted whilst dressing sheep's heads. He also alluded to two other cases. Adding the whole of the cases together (seven), including his own, no less than six terminated fatally, and in three there was a distinct history of an injury to the hands. In a second series of cases he had collected (eight in number), apart from butchers, but where the nature of the occupation brought the patient in contact with animals or dead portions of animals, the acute bullous eruption was fatal in five (four females, one male). In three of these eight cases there was a distinct history of

injury to the hands, and in two others a whitlow of the finger was noticed on admission to hospital. The case of a man who attended horses and milked cows was specially interesting from the fact that the disease followed a wound of the hand and was contracted by inoculation from the teats of a cow. Mr. Pernet then touched upon bullous eruptions found in horses, cattle, &c. With regard to the bacteriology of the case which he had observed, a diplococcus had been found by Dr. W. Bulloch which agreed with the organism first described by Demme, and more recently by Claessen. Mr. Pernet arrived at the following conclusions : (1) there was a group of rare cases of acute bullous eruption, accompanied by severe constitutional symptoms, and generally terminating fatally, which affected butchers ; (2) the disease followed a wound of the hands or fingers, and (3) was probably due to a micro-organism ; (4) the same etiological factors were probably at work in another group of very similar cases, and affected those who handled animals or dead portions of animals, such as hides, meat, &c. He suggested that in future the following points should be looked for in cases coming under observation : (1) occupation (butcher, &c.) ; (2) history of a wound ; (3) presence, or absence, of a characteristic micro-organism, *i.e.*, Demme's diplococcus ; and (4) contact with animals. In conclusion, Mr. Pernet insisted on the importance of thoroughly disinfecting, with powerful antiseptics, all wounds of the fingers and whitlows in butchers and those handling meat, &c. (Paper read before British Medical Association, 1895. The Lancet, August 24, 1895, p. 499.)

RINGWORM.—Staining the Fungus of.

Mr. Malcolm Morris briefly thus describes his method. A suspected hair is first steeped for one or two minutes in a mixture of a 5 per cent. alcoholic solution of violet gentian and anilin water (ten parts of the former to thirty of the latter) ; next it is dried with blotting-paper ; then treated for one or two minutes with pure iodine and iodide of potassium in water ; dried again ; treated once more with anilin oil and pure iodine ; then cleared with anilin oil, washed in xylol, and mounted in Canada balsam. By this means the fungus is beautifully stained without blurring of its microscopic features, and it can be identified without any trouble. (The Practitioner, August, 1895, p. 137.)

SKIN, PIGMENTATION OF AFTER THE USE OF ARSENIC.

At the last meeting of the Vienna Medical Society, Dr. Schlesinger exhibited a patient who had been taking Fowler's solution on account of a tumour in the right arm-pit, and after three weeks' use of it he noticed a discolouration of the skin.

Pigmentation of the skin due to the use of arsenic was first observed some thirty years ago in a case of psoriasis. As a rule it commences gradually, and there is no pigmentation of the mucous membranes—a circumstance which distinguishes these cases from Addison's disease and argyria. The total quantity of arsenious acid taken by the patient amounted to 0·464 gramme (about 7 grains). Mathieu has published a case in which a patient took arsenic for ten years without sustaining any harm, but discolouration of the skin occurred when the daily dose was increased. Dr. Schlesinger advocated the use of arsenic in cases of lymphosarcoma, for the patient showed no other ill-effects attributable to the arsenic, and there was perceptible retrogression of the tumour. (The Lancet, November 8, 1895, p. 1197.)

AFFECTIONS OF THE EYE, EAR, THROAT, &c.

ACCESSORY CAVITIES OF THE NOSE.—Surgical Treatment of Suppuration of.

At the seventh annual meeting of the British Laryngological, Rhinological, and Otological Association, held in London, July 25 and 26, 1895 (*New York Medical Journal*, August 24, 1895), this subject was opened by Dr. John N. Mackenzie, of Baltimore, who expressed himself in accord with Freeman, of Philadelphia, who opens below the nasal duct. He did not approve of intranasal operations which required the removal of the inferior turbinate. Dr. Luc, of Paris, discussed his operation for frontal empyema. It consists in exposing the anterior wall of the frontal sinus at the union of the eyebrow with the bridge of the nose, in curetting away the granulations contained in the cavity, and in destroying the greater part of the floor of the sinus with a chisel, in order to create a large communication between the sinus and the nasal passage. A curved probe is then introduced from the wound into the nose until it appears at the nostril, when a large rubber drain is fixed to its end and from below upward into the sinus, where it is deeply lodged. The wound is then sutured, and antiseptic injections are made through the drain as required. The drain can be removed in a fortnight in acute cases, and after a month in chronic cases complicated with fungosities.

Dr. D. Bryson Delavan, of New York, confined his remarks to ethmoidal disease, and urged the necessity of conservatism in operative treatment, which should be based upon indications suggested by the anatomical and pathological conditions present. It should consist in thorough drainage, persistent cleansing of the several cavities of the sinus, persistent cleansing and dis-

infection of its interior, and the removal of offending tissues, which he performed with a series of fine and variously curved curettes, which he showed to the meeting.

Dr. F. H. Bosworth, of New York, dwelt on the more frequent implication of the ethmoid cells. He uses an electromotor and a burr three-sixteenths of an inch in diameter, in these cases, taking several sittings, up to fifteen, to destroy all partitions, and had observed no ill effects.

Dr. Mayo Gullier described his operation for empyema of the frontal sinus. The incision was vertical and in the middle line, to enable him to explore both cavities. (The American Journal of the Medical Sciences, October, 1895, p. 485.)

BLINDNESS AND HEAD INJURIES.

E. Nettleship, of London (*Ophthalmic Review*, vol. xiv., No. 162), reports three cases of amaurosis after injury to the head. In the first there was a fracture of the base in early childhood, followed by total loss of sight in both eyes, coming on two hours after the accident. For about a fortnight blindness remained complete, then there was gradual recovery until six weeks from the accident. Vision was 6/24 and 6/6. In the second case, of a woman aged fifty years, vision failed about two days after the injury, until unable to count fingers with the right eye. There was hemorrhage from the nose at six days after injury. After twelve days vision improved rapidly, and became "very good" within four weeks. In the third case, of a man aged thirty years, the blindness of the left eye was absolute, and the disc became pale, with slight haziness of the retina and cherry-red spot at the macula. In these cases the blindness is almost always permanent, and the disc comes to show atrophic changes. In the rare cases, where recovery of sight takes place, it seems most probable that the damage has been due to effusion of blood into the sheath space of the optic nerve rather than to injury of the nerve itself. That such distension may occur has been shown by a case reported by Priestly Smith. Nettleship suggests that the appearances in the third case, like those seen in embolism, might be explained by persistent compression of the nerve and the central vessels by a large clot in the sheath. (The American Journal of the Medical Sciences, September, 1895, p. 360)

CATARACT, INCIPIENT.

In conclusion, I wish to suggest that in all cases of incipient cataract (1) the urine should be examined chemically and microscopically; (2) the general health should be carefully interrogated; (3) all errors of refraction should be corrected; (4) a careful examination of the fundus oculi should be made;

(5) that the patient receive such general and local treatment as may be suggested by the above inquiries; (6) that a few carefully reported histories of cases from incipiency to maturity would be of more value than statistics of hundreds of successful operations; (7) that if operative interference becomes necessary it should be instituted at the earliest possible moment before the general health becomes impaired, preferably by Knapp's method of peripheral capsulotomy, with an iridectomy either at the time of the operation or some time previously. (Journal of the American Medical Association, October 19, 1895, p. 649.)

COCHLEA, VESTIBULE, AND THREE SEMI-CIRCULAR CANALS.—Exfoliation of.

The following is the subsequent history of Mr. Secker Walker's case referred to on page 386 *et seq.*:—Five months after the first operation, a sinus continuing behind the ear, the opening was enlarged and some ill-smelling caseated material removed: the posterior part of the petrous was removed as far as the internal auditory meatus. The patient's condition improved, but there still remained a sinus. In October, 1895, the opening was again enlarged, the remains of the mastoid process chipped away, and at some depth a loose sequestrum was felt, and removed with forceps in one piece. This proved to be the almost entire cochlea and vestibule and three semi-circular canals. Since then the patient has improved very markedly, the large cavity left granulating up, and apparently the limits of the disease has been reached.—November, 1895.

DEAFNESS AND TURBINAL HYPERTROPHY.

(*a*) Turbinal hypertrophy must be regarded as a serious complication of deafness and the allied aural disorders; in those cases in which it precedes the aural symptoms it may justly be looked upon as a principal cause of these. (*b*) In all cases in which the hypertrophic change is discovered, active therapeutic measures, of which the chief is the galvano-cautery, should be adopted to reduce it. (*c*) Deviation or distortion of, or growths from, the septum, are rarely, if ever, causes of deafness, and only become such when they complicate turbinal hypertrophy. (*d*) In all cases in which the occlusion of a nostril is found to be in part due to septal deviation or growth, this deviation should be rectified. (*e*) Turbinotomy is indicated in, and should be reserved for, those cases in which, either from the size or nature of the growth, it is useless to hope for improvement from other treatment. This can occur in but relatively a very small proportion of aural cases. (From Dr. Macnaughton-Jones' paper, Medical Press and Circular, October 16, 1895, p. 383.)

ESERINE IN GLAUCOMA.

Hermann Cohn (*Berl. klin. Woch.*, May 27, 1895) draws the following conclusions :—(1) Every case of glaucoma should be treated with eserine. (2) Since the greatest value is observed in the earliest stage, it should be used on the first complaint of the rainbow phenomenon. (3) Eserine acts well in the acute inflammatory attack ; it may be used every hour. If the pupil becomes small the attack passes away in one to two days. (4) Eserine is not harmful ; it can be used for years once or twice daily. Slight iritic irritation is very rare. (5) If eserine fails the patient should be sent to an eye specialist. (6) If the glaucoma advances iridectomy should be performed. (7) Follicular catarrh is only caused by impure eserine.

NERVE DEAFNESS.

Several topics of deep interest to otologists were touched upon at a recent meeting of the British Medical Association. The discussion on the treatment of nerve-deafness, introduced by Dr. Dundas Grant, turned chiefly upon the value of pilocarpine injections in the various forms of the disease. The introducer thought the balance of evidence was in favour of the drug when employed early in cases of labyrinthine effusion and secondary syphilis, though Drs. Barr, Law, and Macnaughton-Jones testified to the disappointing results they had met with in such cases. Mr. Field, however, whose experience of pilocarpine injections is very large, still maintained that if only suitable cases were chosen the remedy often proved of great value. He referred to a patient from whom he had heard that morning, in whom injections of one-eighth grain pilocarpine with one-fortieth grain strychnine had practically restored the hearing power, and he had met with many such in his practice. Miot and Herck, in a recent paper on "The Treatment of Tinnitus," read before the French Society of Otology and Laryngology, recommend hypodermic injections of pilocarpine in inflammatory conditions of the labyrinth preceded by antiphlogistics. (Dr. Hill, in The Practitioner, October, 1895, p. 383.)

OPHTHALMIA NEONATORUM.—Preventive Treatment of.

Budin (*Recueil d'Ophthalmol.*, No. 2, 1895) has for the last three years been in the habit of using a solution of one in 150 of nitrate of silver as a preventive of ophthalmia. In a series of 2,004 confinements in hospital, he only had two cases of true ophthalmia neonatorum, and seven cases of secondary conjunctivitis, this being the term used for cases of purulent disease coming on after the first week of life. In private practice he follows the same method of prophylaxis, and has

never met with a case of purulent discharge from the eyes. His procedure is as follows :—As soon as ever the child is born, and while still between the limbs of its mother, its lids are separated, and two or three drops of the solution instilled into the eyes, the surplus being wiped away with a little cotton wool. This simple manœuvre, which should be an essential part of the routine attention to the new-born child, has been the means of saving many a child from a disgusting and tedious malady, which so often terminates in lifelong interference with normal vision, and not unfrequently in total blindness. (Dr. C. E. Glascott, Medical Chronicle, June, 1895, p. 221.)

OBSTETRICS AND GYNÆCOLOGY.

ASPHYXIA NEONATORUM.—Anæmic Form.

The child is white, cold, perfectly relaxed, and almost in a state of syncope, the eyes are lustreless, with pupils dilated, the lips are colourless, the mouth falls open, the muscles are flaccid, and the sphincters have lost all power of control. The heart-beat is weak, frequent, and hardly perceptible. There is no pulsation in the cord. Respiration may be entirely absent, or is jerky, shallow, and gasping, the lateral chest walls moving slightly only at long intervals. In some cases life seems entirely suspended, the asphyxia being so profound that the evidences of vitality are utterly inappreciable. *Prognosis.*—The prognosis is very unfavourable, both as to resuscitation and the preservation of life afterwards, yet most remarkable results have followed persistent, well directed effort, and, therefore, the obstetrician should not stop in his attempts at resuscitation until all the resources of science have been exhausted. I have repeatedly seen infants revived and restored to vigorous life after having been given up as dead for a considerable length of time. No child should be counted lost as long as there is the faintest flicker of cardiac action, and efforts should be continued even after the heart has ceased to beat. It often requires more than an hour's hard work in these cases to start the feeblest attempt at spontaneous respiratory movement. Such hopeless cases have, however, recovered under proper treatment. The prognosis is especially bad when intrauterine efforts at respiration have taken place, because the filling of the chest with liquor amnii, vernex caseosa, mechonium, and other foreign material, often effectually prevents the entrance of air, and injures seriously the lung tissue. (From Dr. Joseph E. Allen's paper in the Charlotte Medical Journal, March, 1895, p. 1001.)

MORPHIA.—Dangers of in Gynæcological Practice.

In a discussion on this subject Dr. Macnaughton-Jones placed the following conclusions before the British Gynæcological Society :—(1) The risk attending on the use of morphia in the treatment of affections of the pelvic organs in women is often not sufficiently recognised. (2) The influence of temperament has to be carefully considered in its administration. The hysterical and so-called neurotic temperaments being especially susceptible to the intoxicating effects of the drug. (3) In such cases morphia should be used only as a *dernier ressort*, and rarely, if ever, for the relief of what may be said to be subjective pain. This is true of many cases of ovarian neuralgia and reflex ovarian pains. Also in these reflex spinal pains, arising out of real or functional disorders of the generative organs of women, or in the insomnia arising from the same cause. (4) Its use is particularly dangerous at the climacteric. (5) The risk of morphia intoxication should be safeguarded against as far as possible :—(*a*) By the medical man himself, save under very exceptional circumstances, administering the injection. (*b*) Only the quantity of solution requisite for a limited number of injections should be prescribed at the time. The prescription, for safety's sake, might be marked, "not to be compounded unless reinitialled and dated." (*c*) By not giving into patient's hands prescriptions for hypodermic injections of morphia. (*d*) All patients and their friends should be warned of the dangers attending the repeated administration of morphia. Morphia should never be administered from the mere importunity of a patient, unless there is a clear indication for its employment. Pain arising out of cancerous conditions, and pain arising out of acute inflammatory states of the annexa and peritoneum, afford an immunity from the intoxicating action of morphia, and are indications for its judicious use. As a rule, after abdominal operations patients do better without morphia. Lastly, friends and relations who are in the habit of injecting morphia, should be made to clearly understand that circumstances may arise which might bring most disagreeable suspicions of either misadventure or design on those administering it. (British Gynæcological Journal, May, 1895, p. 78.)

MYOMA OF THE UTERUS.—Castration in.

By Dr. Max Frank, (*Corr. Bl. f. Schweizer Aerzte*, xxiv., 7, p. 201, 1894 ; *Schmidt's Jahrbucher*, Band 244, No. 10, 1894.) From 1889, 116 patients with myomata of the uterus have been treated in the Bern clinic ; of these 69 were operated upon, and of these again 20 were treated by oöphorectomy. Of the latter 20 patients not one died from the operation. In three cases removal of the appendages could not be carried through cleanly,

hence only 17 cases come into consideration. The mean age was 40 years. In 12 cases hemorrhage ceased entirely after the operation; in three cases atypical bleeding occurred again a few times for a short time and of small amount; in one case the periods occurred every four weeks, but with the loss of blood lessened by half; one patient escaped observation. In nine cases the tumours have lessened; in four cases remained unaltered; in one case it became larger, and in three cases no sufficient information was obtained. In the 10 cases in which smarting and urinary troubles existed, these disappeared after the operation. In seven cases nervous troubles came on after the operation. Frank comes to the conclusion that removal of the appendages as an operation for the troubles of myomata is occasionally to be recommended, especially when a more radical operation carries more danger with it, as is usually the case. If now and then this operation is performed without success, so that a radical operation becomes necessary afterwards, this is no ground, according to Frank, for becoming an opponent to it, since a large number of cases may receive benefit from this relatively light and favourable operation, and indeed receive permanent cure. (Dr. F. Edge, British Gynæcological Journal, February, 1895, p. 603.)

OBSTETRICAL PARALYSIS.

This was the title of a paper by Dr. G. L. Walton, of Boston. He said that Carter assumed a stretching of the brachial plexus at a spot above the origin of the suprascapular nerve as the cause. This did not account for the escape of the branch to the pectoralis major, which passed off immediately below. The same difficulty presented itself in Oppenheim's theory of pressure against the clavicle. The author suggested that the suprascapular was probably bruised independently against the suprascapular notch or spine of the scapula, while the plexus below was bruised against the clavicle. The branch to the pectoralis major escaped in consequence of having no bony point of fixation. Probably rotation of the face away from the shoulder, which was caught at the brim of the pelvis, aided the stretching, as well as the drawing away of the head already described in this connection. (New York Medical Journal, October 12, 1895, p. 475.)

OCCIPUT.—Posterior Position of.

By Charles W. Townsend. This has been brought to mind recently by a case where I was called by two consultants to do craniotomy. I found the head presenting at the pelvic brim, occiput right posterior, and slightly extended. Numerous attempts had been made to drag the head through the pelvis,

which naturally resulted in failure. Besides this the forceps had slipped, and the child's scalp was torn in one place down to the bone. It was a simple matter under ether to make an accurate diagnosis of the position, and thus determine the cause of the trouble. Many physicians seem to be satisfied with the diagnosis of head presenting, without an accurate diagnosis of position. Even if the sutures and fontanelles are obscured by a caput cuccedaneum, it is always easy, at least under ether, to feel an ear which determines the exact position. With one hand in the vagina the head was easily turned from O. D. P. to O. D. A., the shoulders and body of the child being turned at the same time with the other hand placed externally. Keeping the head in this position by an assistant's hand placed externally, the forceps (with Reynolds' traction-rods) were applied, followed by an easy delivery of a living child weighing eight pounds. Another case, seen a few weeks ago, was a primipara with a child presenting in the rare O. L. P. position. This position is not so very exceptional as some suppose, for I have seen six or eight examples of it. Here I kept the head well flexed, but it refused to rotate, owing to inefficient pains. After a second stage of two hours, the head and body were easily rotated as described before. The head was held in place by the hand in the vagina while the blades of the forceps were applied. This is perhaps the easiest method, and the one I usually employ. A living child weighing nine and one-half pounds was brought into the world with some difficulty over an intact perineum. If the forceps had been applied without rotating the head, or if version had been done, it is evident that the child's chances and those of the perineum would have been small. (Boston Medical and Surgical Journal, August 1, 1895, p. 112.)

PERINEUM.—Preservation of the

Dr. D. B. McCartie describes a new method, and gives the following directions. The patient should be on her left side to get the best results. The head is to be kept flexed even while in the genital canal, though this is not an absolute necessity ; but after the occiput has reached the outlet and we can easily grasp it, it is best even at that early stage to begin flexing the head, since this helps to allow the occiput to slip from under the pubic arch earlier than it otherwise would, and also helps to dilate the perineum by keeping the forehead region rigidly compressed against it. When a part of the occipital region is born it should be grasped by the fingers in front by the right hand (*i.e.*, the fingers near the mons Veneris of the mother), and the thumb behind on some portion of the parietal bone. By this method the head can be kept thoroughly flexed in a most easy

and satisfactory manner. The uterine force can be easily counteracted, and the extreme efforts of the patient are easily controlled, because the head being thoroughly flexed, the force is controlled in the direct axis of the uterus; but, more important than this, the elasticity of the peninæum is counteracted, and extension or rotation over its floor is prevented. The two forces, uterine and perineal, are directed more into a downward movement of flexion, and not in a forward one of extension. (New York Medical Journal, May 25, 1895, p. 649.)

PUERPERAL ENDOMETRITIS.—Local Treatment of.

Huinerik, of Amsterdam, reports in the *Nederl. tijdschr. v. Verlosk en Gynæcol.*, Jahrg. v. Abl. 2, 52 cases of puerperal sepsis in the Amsterdam Obstetric Clinic treated by prolonged irrigation with 1 and 1½ per cent. or 2 per cent. carbolic acid solution, or 1:4,000 bichloride of mercury solution; following this irrigation, the inner surface of the uterus was thoroughly painted with undiluted tincture of iodine. All of the cases recovered, the treatment being instituted so soon as fever developed. (American Journal of the Medical Sciences, June, 1895, p. 717.)

SUSPENSIO UTERI.—The Proper Method of Performing it, and its Results.

Dr. Howard A. Kelly, of Baltimore, read a paper on this subject before the American Medical Association. He stated that he prefers the name "suspensio uteri" to that of "ventral fixation," because the uterus is not fixed at all; on the contrary, it is freely movable after the operation. The indications for the operation are extreme local discomfort associated with retroflexion which cannot be relieved by local treatment. Other indications are where there is general prostration, headache, and the neurasthenic condition associated with the retroflexion which produces more or less local discomfort. Up to the present time he has performed the operation in 170 cases. Of these none died. There were stitch abscesses in 3 cases. In 1 case (in which the appendages has also been removed) there was secondary hemorrhage in the abdomen; in 1 there was transient mania. Bladder symptoms were noticed in 4 cases. In almost every case operated upon there was considerable relief, and the vast majority of them have gone on to a complete and satisfactory recovery of health. A number of the patients have since become pregnant and been successfully delivered. In 1 case the uterus remained in place for two years, and then again became retroflexed. Dr. Kelly then described the technique of the operation, which, he stated, was very simple. It consists essentially of stitching the posterior wall of the uterus to the abdominal wall by means of silk. (Medical Record, May 25, 1895, p. 665.)

SYMPHYSIOTOMY.

Dr. J. Clifton Edgar in the discussion before the New York Academy of Medicine, spoke of 5 cases of his own. He thought the discussion was a little premature in its bearing upon the relative value of symphysiotomy and cœliotomy. He believed that about 74 cases of symphysiotomy had been reported in this country, with a maternal mortality of 12 or 14 per cent. The mortality from the Saenger operation was known to range anywhere from 1 per cent. up to 40. Undoubtedly if cases of late operation were ruled out the mortality from symphysiotomy could be reduced almost to nothing, as it had been done in the Saenger operation. Some time ago, Dr. Reynolds, of Boston, had gone over the statistics of the world with regard to the Saenger operation, and had collected 39 cases in which the operation was done within twenty-four hours after the onset of labour, no previous attempts at delivery, no complications except bony obstruction, and all these patients had recovered. The operations were done by thirty different operators. Under the same circumstances equally good results should follow symphysiotomy. Symphysiotomy was not in any sense a simple operation. In the majority of cases, too, it was attended with subsequent complications, but of these we had heard little from Europe, although, no doubt, they occurred there as elsewhere. It had been claimed that there would not be danger of injury to the vagina and bladder unless the pubic separation were extended to four inches. But it had been shown in Italy that the vagina began to be stretched at 7 ctm., and there was dangerous stretching at 10 ctm. In reviewing his five cases, Dr. Edgar said that in none did the pubic separation approach four inches; in one there was marked hemorrhage from the vessels of the clitoris ; in one there was vaginal laceration and the woman still had a sinus, although she was in good condition. The permanent results were good, for in two of his patients, observed a year or two after the operation, no evidence existed of injury to the pelvis. It had been shown in Italy that the periosteum on the front of the pubic bone would stand stretching 7 or 8 ctm., and if this were not cut through with the knife solid union would take place more quickly. Necrosis of the bone did not mean that the woman was doomed to be a cripple, for in one of his cases suppuration and necrosis took place, and although the convalescence was protracted over five months, yet the woman was now able to do laborious work. Dr. Edgar had found attempts to estimate the size of the child's head by pushing it down into the mother's pelvis rather unsatisfactory. Faraheuf, had invented a kind of forceps for measuring the child's head. All of Dr. Edgar's cases of symphysiotomy had been in tenements. In one the conjugate before symphysiotomy

measured 3·25 inches ; in the next labour the woman was delivered by version. (Medical Record, August 10, 1895, p. 208.)

UTERINE DISPLACEMENTS.—Present Treatment. Dr. Paul F. Mundé read a paper before the American Gynæcological Society. He said that our views regarding the significance of uterine displacements had undergone a marked change in the last fifteen years. A larger experience had taught us that the symptoms of anteflexion in almost all cases were practically *nil*, and pessaries for anteflexion and anteversion were now rarely used. Personally, he had abandoned the use of intravaginal supports for the relief of anteflexion, for they had proved ineffectual. Where dysmenorrhœa and sterility were associated with anteflexion, good results would often follow dilatation and straightening of the canal, with the introduction of a uterine stem. The pessary devised by Dr. Eugene Gehrung, of St. Louis, was the only vaginal instrument that he knew of that would serve a good purpose in the treatment of anteversion with prolapse and cystocele. Experience had taught us that many of the symptoms formerly thought to be due to version or flexion were really due to tubal catarrh and relaxation of the uterine supports. Retroversions of the first and second degrees rarely gave rise to symptoms, but retroversions of the third degree usually interfered with defæcation, and caused prolapse of the ovaries. In the treatment of this class of cases he had succeeded well with intravaginal supports, although, as stated in a former paper, he did not cure with pessaries more than about 5 per cent. of his patients. He had performed Alexander's operation on 77 patients, and had succeeded in following many of them long enough to be assured of the permanency of the result. If the round ligaments were not found it was the fault of the operator. He was as much in favour of the operation as ever, although admitting the difficulties attendant upon its performance. He did not approve of shortening the round ligaments through the abdomen, as recommended by several surgeons, excepting in cases in which the abdomen must be opened for some other and graver condition. He had done the other operation for retro-displacement—ventral fixation—twelve times, and had met with fair success, but one of his patients had subsequently miscarried on account of the fixity of the uterus, and, in fact, the operation had never seemed to him to be founded on a correct principle. The plastic operations for prolapsus uteri had not proved successful in his hands. The plan recommended by Dr. Polk and others, of performing Alexander's operation through an incision in the vagina posteriorly, seemed to offer a distinct advance over other methods. (New York Medical Journal, July 6, 1895, p. 17.)

Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

Art. 1.—HYDROTHERAPY IN FEVERS, ITS RATIONALE AND TECHNIQUE.

By Albert H. Burr, Ph.B., M.D., Physician to Provident Hospital, Chicago, Ill.

[The following is, with a few omissions necessitated by space, the contents concerning a paper read before the American Medical Association, 1895. Some valuable remarks will be found in it on the relations of fever and pyrexia :]

In every febrile condition, whatever its specific cause, there is exhibited a complexity of abnormal physiologic activities, a reaction of the animal system dependent upon the essential properties of protoplasm and nerve energy. The most obvious of these disturbed functions common to all febrile conditions are : increased oxidation, elevation of temperature, increased though still inadequate elimination of waste products, increased frequency and weakened force of the respiratory and cardiac impulses, perverted metabolism and loss in muscular tone and neural vitality.

Pyrexia may be considered normal to every febrile disease. Indeed, it may be one of nature's conservative processes in the systemic reaction of protoplasm and nerve energy against the offending infection. It may be a useful ally in combating, limiting, or destroying the invading microbe, just as inflammation, through processes of reaction, throws up its defensive walls to the enemy. If this be true, the normal temperature of any febrile affection can not be interfered with by direct artificial antipyretics without injury to the patient. Normal reduction of temperature must be secondary, and a natural sequence to the limitation or removal of the trespassing cause.

Hydrotherapy properly used in fevers is not hydropathy, is not a panacea, is not primarily antipyretic, is no longer empiricism. The classical demonstrations of Winternitz, Voit, and Schüller in Europe, of Baruch, Draper, and Thayer in America, have clearly defined the basis of its physiologic action,

and placed it in the front rank of rational therapeutics. A brief summary of their investigations shows that the cardinal principles of the physiologic action of the cold bath in fevers depend :—

(1) On the physical properties, thermic and mechanical, of water itself acting directly as neural stimulants. Water absorbs heat and parts with it quickly. It may be applied in solid, liquid, or gaseous form to the whole body or any part of it. Its application may be continuous or intermittent, alternating from hot to cold, or modified by any desired temperature or pressure. In short, we have always at command a most flexible agent with which to meet a wide range of indications.

(2) On the susceptibility of the sympathetic nervous system to these stimulants, and its control over the vascular and glandular organs of the body. This stimulative action takes place primarily on the cutaneous surface. The skin is a threefold organ, at once the richest in sensory nerves, the greatest in vascular expansion, and the largest in glandular supply of all the organs of the body. What a field for therapeutic operation ! How easy of access and how quick to respond ! Every physician has noted the effects of the rapidly alternating cold and hot bath in resuscitating the asphyxiated new-born babe. No harm results to the delicate infant ; no one charges cruelty when these extremes of thermic effects are thus employed. In syncope what can bring the flush to the pallid cheeks and re-establish respiration so quickly as a stimulating dash of cold water upon the face ? In hysterical paroxysms how quickly the explosions of an unstable nervous condition give way to perfect control through tonicity imparted by the same mechanical and thermic effects of water. We need not multiply instances to show that the stimulating properties of water, appropriately used, are responded to by prompt and definite physiologic activities.

(3) On the reflex action of the stimulated nerve centres, on (*a*) respiration ; (*b*) circulation ; (*c*) metabolism ; (*d*) elimination ; and (*e*) pyrexia.

(*a*) Stimulation of respiratory centres is the first and immediate reflex action from the application of cold water to the cutaneous surfaces. Deep spasmodic inhalations take place, and improved oxygenation of the blood is at once manifest.

(*b*) Circulation is quickened by the reaction on the cutaneous vascular system, which is heightened by friction. In this way the relaxed capillaries are given muscular tone, and are successively emptied and filled by cutaneous massage. The impulses thus set up are conveyed throughout the whole vascular system, relieving stasis and organic congestion, and, in conjunction with improved respiration, stimulate the cardiac centres, and a slower, steadier, strengthened impulse of the heart is definitely established. The effect on the circulating

medium itself is still more wonderful. Winternitz, at the International Congress at Rome last spring, gave the results of some recent investigations of thermic effects on the composition of the blood in health. He demonstrated that all applications of cold to the entire or greater portion of the surface of the body, when proper reaction was secured, led to three remarkable results, viz., an increase in the number of leucocytes, an increase in the percentage of the hæmoglobin, and an increase in the specific gravity of the blood. Local applications of cold, followed by reaction, accomplished the same results in the local blood supply. This affords us now for the first time a rational instead of empirical basis for the employment of cold compresses and poultices.

(*c*) Metabolism, both constructive and destructive, is greatly promoted. This is a natural sequence of the improved blood supply carried to the glands and tissues. Schwann first employed the term to express the changes wrought by living cells upon substances coming in contact with them. This is constructive through nutrition, and destructive through tissue change. The action of the leucocytes may be considered a form of destructive metabolism, and takes place in the blood, glands, or tissues wherever the toxins and microbes of fevers are found. The investigations of Vaughn and others show that the antitoxic and antiseptic effects of the blood are due to leucocytes and their nucleins derived from their cell contents. When leucocytosis was increased the antiseptic and antitoxic power of the blood was also increased. If, then, it is established that cold baths, under proper reaction, increase these leucocytes in the circulation even to threefold, then the destruction of microbic products must be wonderfully increased.

(*d*) Elimination of toxic products through the emunctories is increased by the improved functional activity of all of these organs, as a result of increased pressure and improved blood supply. Juergensen demonstrated that the specific gravity of the urine was increased after the cold baths through increase of urea. Roque and Weil demonstrated that the toxicity of the urine was increased sixfold after the Brandt baths in typhoid fever, while by the expectant plan of treatment it was only twofold, and when antipyretics of the coal tar series were used it was the same as or even less than that of normal urine. Liebermeister and Voit showed that cold baths in fevers greatly increased the elimination of carbon-dioxid by the lungs.

(*e*) Pyrexia is a symptomatic expression of a toxic derangement of neural resistance and control. When the nerve centres begin to recover from the profound intoxication which has disturbed neurotic equilibrium, abnormal temperature begins to subside. Heat reduction, therefore, is a resultant of the

combined effects of the cold baths on respiration, circulation, metabolism, and elimination. It begins to approach the normal status in direct proportion to improvement in these physiologic processes, and is secondary and incidental to them. Nor is heat reduction due in any considerable degree to heat abstraction. If it were so the temperature would begin to rise again as soon as the cold applications were discontinued. On the contrary, I have observed time and again that the temperature continues to fall until it reaches the lowest point in one to one and a half hours after removal from the Brandt bath in typhoid fever. By repeating the bath *pro re nata*, as indicated by the toxic effects on the general condition of the patient, to which the temperature alone is not always an infallible guide, we can more safely and definitely enhance the resistance of vital forces against toxic agencies and promote their elimination than by any known symptomatic drug treatment. As the surgeon gives free and open drainage to the products of infection in a septic cavity, so may the physician, by cold baths with reaction, favour the physiologic drainage of toxins from a body charged with thermogenic poisons. It is a mistake, and a generally prevalent one also, for which our text-books are largely at fault, to regard the cold water treatment of fevers, especially that of Brandt in typhoid, as an antipyretic measure chiefly. Hence resort is had to less troublesome, but more dangerous, means of reducing temperature. Brandt attributed its benefits to the stimulative effects primarily, with fall of temperature as a secondary result. Heat reduction in continued fevers *per se* is of little practical value. It is not heat but poison which is the disturbing element. Heat is a symptom, one of the effects of the operating toxæmia. Heat reduction in itself cannot eliminate toxins or destroy microbes, and all therapeutic measures used for antipyretic effects which do not limit or remove disturbing causes are both unscientific and absolutely dangerous. Experiments just cited prove that artificial antipyretics are worse than useless, in that they retard toxin elimination.

Upon these deductions rest the claims of hydrotherapy as a rational and scientific treatment in fevers. If we have rightly interpreted the physiologic activities which are stimulated by the appropriate thermic and mechanical effects of water, then we have at hand an agent universally adaptable to the treatment of all thermogenic diseases. No known drug remedy can so quickly and definitely influence the functional activities of living cells in nerve, gland, or muscle, or protoplasm itself, as water when appropriately used in fevers.

If clinical experience is the highest court of appeal in all therapeutic questions surely the evidence is overwhelming, and the medical profession of America must stand convinced of its

truths, and convicted for its apathy towards so great a life-saving measure.

It is conclusive that the earlier this treatment is instituted the more favourable the results. My own practice is not to wait for a diagnosis, but to institute some appropriate bath for all fever patients at once. Nothing but good can come of it, no matter what the diagnosis, and in the event of typhoid everything is to be gained. Where the life of the patient is in jeopardy no unavoidable risks can be taken by the attendant without censure.

Technique.—The most efficient of all hydrotherapeutic measures in the treatment of fevers is the full bath. There are certain obstacles in the way of putting it into practical use, chief of which are :—(1) Entire absence of, or imperfect facilities in, the home for giving the full bath. (2) Dangers and annoyance to the patient from handling to and from the tub in another room, or even at the bedside. (3) The exhaustive labour imposed on attendants. (4) The objections and prejudices of patient and friends to the discomfort of the plan as ordinarily carried out.

To overcome these by no means trifling objections I have devised a portable folding tub for use in the bed of the patient, which, I believe, will commend itself at once for the ease with which it may be employed, under all circumstances, with the utmost comfort to the patient and attendants, and prove a valuable addition to the technique of cold baths in fevers. It consists, first, of a large rubber sheet, with rings attached by elastic tapes near its margins, and of a crib-like wooden frame, with fastenings along the outside of the lower rail to hold the sheet when in use. This frame can be folded into a space 2 by 3 inches by 8 feet long when not in use. The accessories are a $\frac{3}{4}$-inch hose, with a metal elbow for a siphon, a bath thermometer, and a sponge of good size.

In use the sheet is first slipped under the patient and brought up over the pillow, and its edges tucked up alongside the body. The frame is then unfolded and placed down over the patient, pillow, rubber sheet and all. The edges of the sheet are now drawn up over the top rail of the crib and down the outside to the lower rail, where it is held fast by its rings. This completes a light and perfect tub capable of holding 20 gallons of water if desired, and capable of being emptied quickly by the large siphon.

The bath is now initiated with the patient resting comfortably on his own mattress and pillow, with but slight disturbance. Any gradation of temperature from 90 degrees down to 65 degrees may be employed, or changed rapidly or slowly as desired, while friction over the entire body by constant rubbing is practised for 10 or 15 minutes. The bath completed, the water is siphoned into tubs or buckets on the floor. Any excess

is sponged up, the edges of the sheet are then unfastened and dropped inside the frame, which is lifted, folded, and set away. The sheet may be slipped from under the patient or remain at will, with fresh linen over it, for the next bath.

The many advantages derived from this simple and comparatively inexpensive tub are so evident as to require no enumeration. Spongings or ablutions, however well done, cannot take the place of tubbing. They are feeble substitutes, and fall short of the chief effects of the full bath, viz.: the greater reflex stimulation, with corresponding sequelæ, engendered by the contact of cold water over the entire cutaneous surface. Cold packs preclude the constant chafing and friction over the whole body, which is an essential feature of the full bath to maintain tonic reaction of the cutaneous circulation. These less rigorous methods, however, may serve to educate the patient in the beginning, and lead up to the more effective full bath.

If one chooses to employ the graduated bath of Ziemssen, which consists in gradually reducing the temperature from 90 degrees to 72 degrees for half an hour with gentle friction, a plan much in favour at the Tübingen University clinics, or the prolonged warm bath of Dr. L. Reiss, of Berlin, which consists in immersing the patient in a bath at 88 degrees whenever rectal temperature reaches 102 degrees, and continued through the day, or night and day if necessary, till temperature in rectum registers 100 degrees, then the comforts and utility of the tub here presented are still more manifest.—*The Journal of the American Medical Association, June* 8, 1895, *p.* 867.

2.—ERUPTIONS SIMULATING SCARLATINA.

By J. P. C. Griffith, M.D., of Philadelphia,

Clinical Professor of Diseases of Children in the University of Pennsylvania;

Professor of Clinical Medicine in the Philadelphia Polycinic, &c.

[The illustrative cases in this paper have had to be omitted owing to conditions of space.]

The eruptions that most often resemble that of scarlatina are various forms of erythema. One of the most puzzling, although comparatively less frequent conditions, rendering the diagnosis of scarlatina difficult, is the occurrence of an erythematous rash attending tonsillitis. A cursory examination of medical literature has not shown me much written upon the subject, yet

the condition is one that undoubtedly occurs. Its recognition is all the more difficult on account of the fact that the combination of sore throat with eruption is exactly what we would expect to find in scarlatina.

It is, indeed, only to be expected that cases like this should occur frequently when we remember that both erythema and tonsillitis are often local manifestations of rheumatism. I have known of cases in which there was no question of the rheumatic nature of the scarlatiniform rash, in which tonsillitis and an erythema exactly resembling the eruption of scarlet fever were associated with articular and cardiac manifestations of rheumatism. Such a case, too, was recently reported by Boyd, in which tonsillitis was followed by a decidedly persistent erythema, with pain in the fingers and wrists, and in which, although scarlatina was at first strongly suspected, the later course of the case and the articular involvement removed all doubt. Sometimes, it must be remembered, we find cases that we suspect of being merely tonsillitis with erythema, but which turn out to be scarlatina. Instances of this nature show the importance of instituting proper treatment and quarantine in all doubtful cases.

The condition known as surgical scarlatina may be considered in this connection. It is to some extent a very puzzling one, and one about which writers are not agreed. Some make the statement that surgical scarlet fever is simply scarlet fever occurring in a surgical case. Others take the ground that the disease is a manifestation of septicæmia. It seems certain that some of the cases, at least, are not examples of scarlatina, although greatly resembling it at first. The distinction is most important, as the question of the danger to others must be considered.

The disease known as puerperal scarlet fever is of the same nature as the surgical variety, viz., usually erythematous and of a septic origin. Of course, true scarlatina may occur in the puerperium.

A scarlatiniform rash occurring after the administration of enemata has been described by Suckling and others. It has never been my fortune to meet with this. Very often the diagnosis between scarlatina and some of the rashes resembling it can be made only by the later course of the attack. If the peculiar peeling takes place we have good reason to suspect that we have had to do with scarlatina. This applies to the diagnosis between this disease and rubella and most of the instances of erythema, but it is a rule by no means without exception. That is to say, the absence of peeling would render the existence of scarlatina rather improbable, but its presence is not certain proof that scarlatina has existed.

We cannot make the limitation of the eruption to certain parts of the body a test for the absence of scarlet fever. As a matter of fact, the extent of the eruption is no guide in diagnosis. In malignant cases, as is well known, little if any rash may appear at any time. In very mild cases, too, the rash may be very limited in extent.

We may recall here the interesting cases published by Blanc, in which recurrences of a widespread eruption, followed by desquamation, had several times caused physicians to make the diagnosis of scarlet fever in two patients. Similar cases have been observed by others both in this country and in Europe, and the disease has been given different names, such as *erythema exfoliativum recurrens*, *erythema scarlatiniforme*, &c.

There are other conditions that might cause difficulty in diagnosis if we depended upon the rash alone, and which, indeed, may sometimes give us trouble in spite of careful study. Various drugs are capable of producing an erythema that may look much like that of scarlet fever, although it oftenest takes the form of a maculo-papular rash simulating that of measles. Thus, for instance, quinine is capable of producing a scarlatiniform eruption. Antipyrin may do the same, although the antipyrin rash is generally rubeolous in appearance. Copaiba may also bring out an erythematous rash. The use of the diphtheria-antitoxin has brought out the fact that this, too, or at least the blood-serum containing it, is capable of producing an eruption resembling that of scarlet fever. Belladonna may produce an eruption that may be very confusing. In the case of a little boy of ten years, suffering from scarlet fever, the homœopathic attendant had given so much belladonna that it was impossible at first to determine how much of the redness of the skin and dryness of the mouth was due to the disease and how much was caused by the drug.

A scarlatiniform eruption may occur in the course of different diseases. Rarely it is seen attending gonorrhœa, independently of the use of copaiba, and it is then probably septic in origin. It may also occur with typhoid fever, usually early in the disease, and may exactly resemble the rash of scarlet fever. As is well known, a scarlatiniform rash appears in many cases among the prodromal symptoms of smallpox. This may be widespread, although it is usually limited to certain regions of the body. In varicella, too, an erythema may be among the prodromes in exceptional cases. There have been a good many cases reported of the co-existence of varicella and scarlatina in one person. This does occur, but in many instances it seems very possible that the apparent combination has been due to the development of an erythema during the existence of varicella.

Diphtheria may sometimes, although not commonly, exhibit an erythematous eruption that is capable of obscuring the diagnosis. The fact that in malignant cases of scarlet fever the rash may be entirely or nearly absent, while the throat symptoms are very pronounced, adds to the difficulty. Of course, the frequency with which diphtheria occurs in combination with scarlet fever is still another complicating factor.

It would seem almost impossible that an affection with such a characteristic rash as measles could ever be confounded with scarlet fever, and such, indeed, is the case, if we are guided by the complex of symptoms of the two diseases. As far as the rash itself goes, however, it sometimes happens that the eruption of scarlet fever in malignant cases is a good deal like that of measles. In these cases a very imperfectly developed rash may be decidedly macular, although, it is true, it is nearly always in some parts sufficiently characteristic, with the presence of other symptoms, to render the diagnosis plain. It is rather scarlatina resembling measles than the reverse.

Finally, and perhaps most important, as it is most puzzling, is the fact that the rash of rubella very frequently simulates most closely that of scarlet fever—so closely, indeed, that in mild cases of the latter disease the diagnosis may be impossible until, perhaps, the characteristic peeling later clears up the uncertainty. So common is this similarity that this form of the affection has been designated *rubella scarlatiniforme*. The rash in these cases becomes universally confluent, is not at all elevated, and may exactly resemble that of scarlatina, except that one can usually find at the ankles or wrists a papular or macular marking at the edge of, or even in, the general diffuse redness. On this appearance the probable differentiation can often be based. So, too, rubella is likely to show at the beginning the macular rash, even though a diffuse redness appears in a day or two. Yet these diagnostic points, although of service, are very likely to play one false when most needed.

Cases of scarlatina occur in which the macular appearance of the rash on the extremities is quite evident ; while, on the other hand, the eruption of rubella, unless studied throughout its whole course, may fail to exhibit any character that can be called distinguishing.

To sum up, then, we find that the eruption of scarlet fever is not only liable to vary decidedly in different cases, especially of the malignant or very light forms, but that other eruptions may resemble the typical rash very closely ; that the erythemata are likely to be very evanescent, and that this peculiarity aids in recognizing them, but that they by no means need to be of this nature ; that peeling in a characteristic manner occurs in most cases of scarlet fever, but this may occasionally occur, although

fortunately rarely, in other conditions, and, sometimes, in scarlet fever it is scarcely perceptible ; that it is even possible for the eruption of scarlet fever to suggest the presence of measles, and that the eruption of rubella can in very numerous cases, with difficulty, if at all, be distinguished from that of the more serious affection.

So much for the difficulties of diagnosis as far as the eruption itself is concerned. With regard to the means of determining that we have actually to do with scarlet fever, and nothing else, the subject is far too large to be entered upon in this connection. It need only be said that it is important, above all things, to endeavour to make the diagnosis from the complex of symptoms rather than from the nature of any one, whether eruption, fever, tongue, pulse, or what not. In this way the careful physician will usually arrive at a correct conclusion, though not always.—*Medical News, August* 31, 1895, *p.* 236.

3—DIAGNOSIS OF SMALL-POX.

By H. Meredith Richards, M.D., B.S. Lond.,
Medical Superintendent, City Hospitals, Birmingham.

[In an article on this subject, the following remarks are made on the diagnosis in the pre-eruptive and early eruptive stages.]

Pre-eruptive Stage.—A combination of vomiting, pyrexia, and lumbar pain can be regarded only as suggestive, but would be highly suspicious if small-pox were prevalent and would certainly justify isolation of the patient and vaccination of those associated with him if there were a definite history of exposure to infection about twelve days previous to the onset of symptoms. In most cases a certain diagnosis will be made on the appearance of the eruption, though in very rare cases there is no exanthem. As regards the prodromal rashes, the general scarlatiniform rash gives rise to most trouble. In about a dozen instances this variety has been diagnosed as scarlet fever and sent to hospital as such. As far as the rash itself is concerned it is often absolutely indistinguishable from scarlet fever, while pyrexia and vomiting are common to the two diseases. Severe lumbar pain and epigastric pain are greatly in favour of small-pox, especially if circum-oral pallor, strawberry tongue, and adenitis are absent. The condition of the throat is of most

importance. In small-pox at this stage the throat is either unaffected or one finds a varying number of bright-red macules about the size of a split pea scattered over the soft palate and pillars of the fauces. This is very typical and quite different from the œdematous injected arch seen on the palate in scarlet fever. More typical still is the appearance of opaline vesicles in the same region. Careful examination of the throat will, at any rate, arouse suspicions of small-pox. Morbilliform prodromals are often mistaken for measles, but these rashes are rarely seen on the face, are not so papular as measles, and are not accompanied by catarrhal symptoms. Urticarial prodromals are fortunately uncommon. They are extremely deceptive, and a certain diagnosis can only be made after the appearance of the eruption. It is important to remember that a prodromal may take this form. If a patient who has been exposed to the infection of small-pox develops pyrexia, with an urticarial-like rash, he should certainly be placed in quarantine to watch developments. The so-called "bathing-drawers" rash, which may be erythematous or petechial, and is confined to the groins and axillæ, affords certain grounds for diagnosing small-pox if accompanied by the ordinary symptoms of that disease. The diagnosis of purpura variolosa is very easy if the existence of this type is borne in mind. The rash may not be distinguishable from ordinary purpura, but is usually accompanied by the petechial "bathing-drawers" rash. This, combined with more or less pyrexia, hemorrhages from mucous membranes, hemorrhagic chemosis of the ocular conjunctiva, extreme pigmentation of the lower eyelids, slight lividity, complete consciousness, with a general aspect of intense weariness and prostration, form a clinical picture which can hardly be mistaken.

Early eruptive stage (*i.e.*, *stage of papules and papulo-vesicles*).—The eruption usually appears on the third day, is distinctly shotty on the fourth, and vesicular on the fifth day of the disease. An eruption following constitutional symptoms which has this course is very probably small-pox, and is almost certainly so if the eruption is accompanied by a fall in temperature, if it is most marked on the wrists and face, if the developed papulo-vesicles are about the size of a split pea and of a greyish-blue colour. A small-pox eruption is for the most part uniform in development except that the lesions appear earlier on the wrists and face than on the trunk and legs. The subsequent evolution of the rash follows the same course, so that vesicles on the wrist or face may be accompanied by papules on the legs. Some of the vesicles will usually show umbilication, but far too much importance has been attached to this sign, which is frequently absent altogether. Measles is frequently taken for confluent small-pox and *vice versâ*. Attention to the

following distinction will prevent mistake. The eruption of small-pox most commonly appears on the second or third day, that of measles on the fourth or fifth day of illness. Coryzal symptoms of measles and especially a laryngeal cough are absent in small-pox. The temperature tends to fall in small-pox, but rises in measles as the eruption develops. The condition of the soft palate and fauces is very different in the two diseases; in measles there is general injection combined with mottling, while in confluent small-pox there are flat opaline vesicles or at any rate the red macules previously described. Too much dependence is perhaps placed on "Grisolle's sign"; small-pox is not shotty in the first few hours when it is most likely to be mistaken for measles, and measles papules can occasionally be just felt when the skin over them is stretched. In case of doubt time will solve the problem, as after the lapse of twenty-four hours some of the papules will have become vesicular if the disease is small-pox. Typical varicella, in which the clear superficial vesicles look like drops of water, has little resemblance to any stage of small-pox. The eruption is evidently quite superficial in chicken-pox, apparently not deeper than the Malpighian layer of the epidermis, while in small-pox the true skin is usually involved. Constitutional symptoms are little marked as a rule in chicken-pox, while they are rarely absent in small-pox. Too much reliance cannot, however, be placed on this. A temperature of 102° to 103° F., with some backache and vomiting, is quite compatible with an uncommonly severe case of varicella. The eruption is usually the first symptom noticed in varicella. It differs from small-pox in being most marked on the trunk, and comes out in irregular crops instead of having the orderly progression noticed in small-pox. It is distinctly vesicular from the very first day, and as the disease advances it exhibits a medley of papules, vesicles, pustules, and scabbing lesions in every part of the body. Umbilication is occasionally seen, and appears to depend on accidental relations to sweat glands or hair follicles, but is very rare apart from the pseudo-umbilication referred to later. One is sometimes asked, Could not a given varicella eruption be modified small-pox? Abortive small-pox vesicles always exhibit a typical infiltrated papular base, which is absolutely distinct from the hyperæmic areola of varicella. It may be repeated that most mistakes are due to not seeing the whole eruption.

Papular syphilides are occasionally diagnosed as small-pox, but the different constitutional symptoms, the onset, the polymorphic character of the rash, cachexia, general glandular enlargement, and primary sore are sufficient to make the distinction once suspicion is aroused.—*The Lancet, July* 20, 1895, *p.* 145.

4.—TYPHOID BACILLI IN THE URINE IN TYPHOID FEVER.

By A. E. Wright, M.D.,
Professor of Pathology, Army Medical School, Netley;
Surgeon-Major D. Semple, M.D.,
Assistant Professor of Pathology, Army Medical School, Netley.

[The following article is interesting, not only from its containing evidence of the presence of typhoid bacilli in the urine in enteric fever, but also from the endeavour to explain the symptoms, &c., of the disease from the bacteriological standpoint. The cases, owing to considerations of space, have been omitted.]

The fact that typhoid bacilli are to be found in the urine of patients suffering from typhoid fever is not a new fact. It is, however, a very important fact, and for these reasons. First, if it is true that the typhoid bacilli are present in the urine of patients suffering from typhoid fever, and if, as we shall see, typhoid bacilli are generally absent from the fæces, it will be evident that it is the urine, and not the fæces, of patients suffering from typhoid fever which is responsible for the spread of typhoid infection. Secondly, if typhoid bacilli are constantly present in the urine of typhoid patients, it may be possible to diagnose the presence or absence of typhoid fever by undertaking a bacteriological examination of the urine. Thirdly, if it is true that typhoid bacilli are constantly present in the urine in cases of typhoid fever, while they are generally absent from the fæces, it will be evident that the conception of typhoid fever upon which the ordinary clinician proceeds is an entirely erroneous one. It will be convenient to proceed immediately with the discussion of this question. The theory of typhoid fever which is currently held, and currently acted upon, is the theory that typhoid fever is an "intoxication process," much in the same way as cholera is an "intoxication process." In other words, it is assumed that the typhoid bacillus vegetates in the intestine, that it effects a lodgment in the intestinal walls, and that the poisons which are elaborated by the bacilli are absorbed into the system from the intestine. The systemic disturbance which characterises typhoid fever is attributed to this absorption. This theory of typhoid fever is brought into harmony with notorious bacteriological facts by the assumption that there is a certain leakage of typhoid bacilli from the intestine into the system. This leakage theory is supposed to dispose of the fact that typhoid bacilli are invariably found in the spleen and mesenteric glands of patients suffering from typhoid fever.

Now, this "intoxication" theory of typhoid fever was originally based upon the fact that a bacillus which is morphologically indistinguishable from the typhoid bacillus is found in large quantities in the stools in every case of typhoid fever. Subsequent investigations, however, showed that this bacillus, which predominates in the intestinal floor in cases of typhoid fever, can be distinguished from the true typhoid fever bacillus by a series of chemical differences. The bacillus which is found in such large quantities in the stools of patients suffering from typhoid fever is therefore not the true typhoid fever bacillus. It is the bacillus which is known by the name of "bacillus coli communis." Recent research has, therefore, been directed to the question as to whether, in addition to the bacillus coli communis, the true typhoid fever bacillus is not also to be found in the stools of patients suffering from typhoid fever. The following are the results of Wathelet's careful examination of this question. The true typhoid fever bacillus was detected in the stools of only four of the twelve cases of typhoid fever which were studied by this observer. In the case of these four patients the typhoid fever bacillus was detected only four times in a total of twenty-four examinations; and even on these four occasions the true typhoid fever bacillus was outnumbered by the bacillus coli communis in the proportion of about three to one. In the case of the other eight cases of typhoid fever the bacillus appeared to be absent from the stools throughout the whole course of the disease. Wathelet has further shown that if the bacillus typhosus and the bacillus coli communis are implanted into one and the same tube of nutrient broth, the bacillus coli communis will outgrow and kill off the typhoid fever bacillus, even when at the outset an enormous numerical preponderance is given to the typhoid bacillus over the bacillus coli communis. Again, Wathelet has shown that whereas the bacillus coli communis will flourish in a nutrient medium containing the toxines elaborated by the typhoid fever bacillus, the typhoid fever bacillus will not grow in a nutrient medium containing the toxines elaborated by the bacillus coli communis. If this holds true in every case—and it has seemed to hold true in the few test experiments we have performed—we are evidently in a position to infer on *a priori* grounds that typhoid fever bacilli will be absent from the intestine whenever, as in the case of typhoid fever, we have to deal with a multiplication of the bacillus coli communis in the intestine. Both *a priori* reasons and actual observations, therefore, point to the absence of typhoid fever bacilli from the intestinal tract, and therefore the symptoms of typhoid fever cannot be interpreted as a result of the absorption of typhoid toxines from the intestine. We are therefore compelled to seek for a new theory of typhoid

fever, and if typhoid fever is not the result of an intestinal intoxication process we must evidently seek to explain it as a result of a blood infection. This is, if we understand it aright, the theory of typhoid fever which has recently been put forward by Sanarelli under the auspices of Metschnikoff. We have to see whether typhoid fever can be explained upon the basis of this theory; and evidently the first thing to be explained in the case of typhoid fever is the turgidity of the spleen and the presence of typhoid bacilli in the splenic tissue. Now, this turgidity of the spleen and this presence of micro-organisms in the splenic tissue is an invariable accompaniment of every septicæmic process. We find it in the case of such blood infections as anthrax in cattle and spirillum fever and malaria in man. And we have the explanation of this phenomenon in the experiments of Werigo, which show that the introduction of any foreign particulate matter into the blood invariably results in a deposition of that particulate matter in the spleen (and other internal organs), and in an aggregation of polynuclear white blood corpuscles round the foreign particulate matter, and, finally, in a process of phagocytosis. Everybody who has a rabbit and a little carmine, or any bacterial culture, at his disposal, can readily verify these facts for himself. The enlarged spleen and the presence of bacteria there are thus quite in harmony with the theory of a blood infection in typhoid fever. The fact that the white blood corpuscles are diminished in the circulating blood in typhoid fever is also in harmony with this explanation. We have further in connection with typhoid fever to account for the eruption of pink spots on the skin. These were inexplicable on the intoxication theory of typhoid fever. They are, however, of the easiest explanation if we make the assumption that typhoid fever is characterised by a blood infection, for here, as in other cases, we may instance the skin eruption in the case of human glanders, the spots evidently correspond to lodgments of the bacteria in the capillaries of the skin. This interpretation of the skin eruption in typhoid fever has been borne out in the case of typhoid fever, just as it has in the case of glanders, by the fact that the specific bacteria have been cultivated from the spots. We have been able to confirm this observation in one of the cases of typhoid fever reported below.

The intestinal symptoms of typhoid fever are of somewhat uncertain explanation. Possibly they are to be explained, as Sanarelli explains them, as a specific effect of the typhoid fever toxine on the adenoid tissue of the intestine, and of the subsequent invasion of that tissue by the bacillus coli communis. We have, however, not been able to verify Sanarelli's observation that the injection of typhoid fever toxine will produce

a swelling of the Peyer's patches in the guinea-pig. On the other hand, the inflammation of the Peyer's patches might evidently be due to a lodgment of typhoid bacilli in the adenoid tissue comparable to that which occurs in the capillaries of the skin. We thus see that the theory of a blood infection will account for the intestinal phenomena just as well as the theory which locates the source of the disease in the intestine. The occasional presence of typhoid fever bacilli in the intestine is easily accounted for by assuming that a certain number of the typhoid fever bacilli escape through the intestinal wall into the intestinal contents. The relapses which occur in typhoid fever may be compared with the relapses which occur in spirillum fever, which is a typically septicæmic process. In both cases the cause of the relapses would be some incompleteness in the original phagocytic reaction. Such incomplete phagocytosis would be followed up by a cultivation of the typhoid fever bacilli in the spleen, and ultimately by a dissemination of these bacteria through the body by means of the blood current. This would be evidenced by a fresh outcrop of spots upon the skin.

In addition to the points which have just been touched upon, we may refer to two others, which, though they have been comparatively neglected, throw an important light upon the pathological processes which are associated with typhoid fever. The phenomena in point are the presence of so-called "miliary lymphomata" in the kidney and the presence of the typhoid bacilli in the urine. We have had no recent opportunity of studying the miliary lymphomata which are described as occurring in typhoid fever, but they are probably quite comparable to the miliary lymphomata which are described as occurring in the spleen in cases of spirillum fever, and to the miliary lymphomata which are produced by the injection of fairly resistant bacteria, such as tubercle bacteria, into the blood. Such lymphomata correspond to aggregations of white blood corpuscles around bacteria which have lodged in the capillaries. They are a repetition in small of the aggregations of phagocytic white blood corpuscles which are seen on a far larger scale in the spleen. Lastly, with regard to the presence of typhoid fever bacilli in the urine. Even if typhoid bacilli were found in the urine only in occasional cases their presence there would be a strong argument in favour of the theory of a blood-infection and against the intestinal intoxication theory. But the argument in favour of the septicæmic theory of typhoid fever becomes irresistible if it can be shown that the typhoid fever bacilli are almost always found in the urine in cases of typhoid fever. With a view to ascertaining this point we have examined the urine in several cases of typhoid fever.

We find that in six out of seven cases examined the typhoid fever bacilli were easily detected in the urine. In view of this fact it seems to us that the bacteriological examination of the urine ought not to be neglected in any doubtful case in which typhoid fever is suspected. It is hardly necessary to do more than merely advert to the hygienic aspect of the matter. It was only a natural outcome of the intestinal intoxication theory of typhoid fever that the greatest precaution should have been enjoined with regard to the stools of the patient suffering from typhoid fever, while the disinfection of his urine was neglected. If, however, the recent observations on the almost constant absence of typhoid fever bacilli from the stools are to be trusted, the disinfection of the fæces will have to rank not as an article of faith, but as a mere "counsel of perfection." On the other hand, the most careful attention will have to be given to the disinfection of the urine. In some cases the urine even before incubation is absolutely turbid with typhoid bacilli. In conclusion, it is our pleasant task to thank Dr. W. P. Purvis, of the Southampton Infirmary, for the notes of the clinical cases which he has furnished and for much useful assistance in the conduct of the bacteriological examinations.—*The Lancet, July* 27, 1895, *p.* 196.

5.—ON THE CONDITION KNOWN AS THE TYPHOID STATE.

By Norman Hay Forbes, F.R.C.S. Edin., Medical Officer, Tunbridge Wells Dispensary.

[The following is taken from a paper in *The Lancet*, Aug. 17, 1895 :]

1. *Definition and meaning of the term.*—By the term "typhoid state" we understand a well-marked group or series of symptoms arising during the course of any disease in which "fever" (pyrexia), from whatever cause, is the essential feature of that morbid condition, and when that pyrexia is either excessive or long-continued, or both, the train of symptoms being "centralised" in the generic term "typhoid," which is in itself, without doubt, somewhat loose and indefinite, pathologically more or less inaccurate, and, lastly, not strictly logical. For in its history and etymology the word "typhoid"—derived from the Greek τῦφος (smoke or vapour) and εἶδος (resemblance of form, or likeness)—conveys the general idea that the condition is like or resembling typhoid fever, like the stupor seen in typhoid fever —and, that being so, it does not tell us anything precise regarding

its true and exact nature—nothing essential about the condition itself, but merely that it is like, or has the appearance of something else, and so this lax term has imperceptibly come to convey, in a somewhat vague and non-scientific manner, the general idea that the condition is, comparatively speaking, identical with a condition first observed in typhus and in typhoid fevers. Briefly, the object of this paper is to endeavour to generalise the views and opinions regarding the so-called "typhoid state," and at the same time to state clearly and concisely its true pathological and clinical import in disease, and to summarise its characteristic features.

2. *Causation and circumstances under which the condition arises.*—The causes which induce the appearance and development of the "typhoid state" may generally be arranged under three main heads. In the first place, in both medical and surgical cases a most important and primary cause lies in the toxic and noxious influence that a high internal temperature has upon the tissue elements of the central nervous system, and more especially upon those parts of the medulla in which are located the "respiratory" and "cardiac" centres, as well as the so-called "thermo-genetic" "centre." Secondly, another important etiological factor is the direct and cogent effect that this same high temperature, both of blood and tissues, has upon the parenchyma of the glandular organs, the liver, kidneys, and spleen, lessening elimination and blood elaboration, and acting injuriously upon the muscular fibre both of the heart and voluntary muscles. The third head in the causation of the condition in question lies in certain ill-understood chemical changes in the composition of the blood, and the effect that that chemically-altered blood has upon the blood-vessels and tissues generally of the body. This latter problem is a difficult one to solve, a "quæstio vexata," owing to the fact that our knowledge of the physiological chemistry of the blood (cf. writings of Halliburton, Hunter, Wooldridge, Crookshank, &c.), and of the action of toxic albumoses (Martin), ptomaines, and leucomaines, coupled with putrefaction products in the blood, is more or less in a preliminary and transitional stage, and consequently limited, dimly lighted, and admittedly imperfect. Thus, to summarise this last factor, we have—(1) the absorption of the effete products of chemical combustion in the body; (2) the toxic effects of pathogenic, "infective," micro-organisms in the blood; and (3) the consequent alteration in the forces of the circulation, and variations in blood-pressure and nerve stimulus.

The diseases in which the "typhoid state" most frequently occurs are for the most part as follows:—(1) Typhus fever (Rouillion), and the "typhus traumatique" of Ollivier; (2) yellow fever, "bilious typhoid" (Fagge); (3) "enteric fever (the

term "typhoid fever" should be discontinued); (4) certain "pernicious" malarial fevers; (5) the "malignant" type of scarlet fever; (6) variola (Hilton Fagge), especially in the third week; (7) in the first stage of the plague, "after the appearance of intense pyrexia, and subsequent violent delirium"; (8) in cholera-typhoid, and in cholerine (Hilton Fagge); (9) in diphtheria, where the characters of an "infective" fever with febrile albuminuria and other "typhoid" symptoms are evident; (10) in "adynamic" remittent fever, and in the so-called "typho-malarial fever" of the United States; (11) in "malignant" and "intestinal" anthrax—in this condition, however, the temperature is not always high; (12) in "infectious pneumonia" of an epidemic nature, and "croupous" or "fibrinous" in type (Whitelegge)—this occurs both in fatal and in non-fatal cases which are severe and protracted; (13) in chronic starvation and general wasting (Whitelegge); (14) in phlebitis (Hodgson, Breschet, Blaudin), and in "la phlébite utérine" (phlegmasia dolens); and (15) in experimental injection of septic substances into the veins (Gaspard, Laurent, and Dupuis).

3. *Clinical phenomena, symptoms, and general course of the "typhoid state."*—Passing from a study of the etiology of this condition, to view the symptoms noted in cases under observation, the fact must be borne in mind that there are several phases of this "state" distinctly different in their nature, but that in all cases there is an apparent similarity in the grouping sequence and arrangement of the symptoms. It will be convenient to classify those signs under the systems to which they naturally refer—as, for instance:—(1) Those symptoms directly referable to the nervous system, these being the most important and, as a rule, the most prominent; (2) those both primarily and indirectly referable to the circulatory system; and (3) those referable to the respiratory, digestive, and excretory systems. The phenomena referable to the nervous system constitute the major and more serious aspect of this condition, and in noticing them somewhat in detail it must be remembered that they are essentially characteristic evidences of a "diseased" and profoundly "depressed" condition of the higher nervous centres. Perhaps the most striking feature is the absolute depression of the nervous force and vital energy (adynamia and the diminution of the physiological activity and cell function of the brain). The patient is seen lying on his back, prostrate, listless, and quite indifferent to his surroundings. There is a low, somnolent, muttering delirium, gradually shading into a dull, comatose stupor, of heavy and "dusky" aspect, little or no real sleep (coma-vigil), associated at times with derangement of the senses, and hallucinations of sight and hearing. The power of the mental

faculties is impaired—a dull and clouded intellect, a mind wandering strangely. The delirium may at one time be acute, violent, and noisy, an exacerbation from the more frequent low, muttering, and lethargic type. Sometimes muscular (fibrillar) tremor occurs, occasionally subsultus tendinum, carphology, and general convulsions. The urine and fæces are passed involuntarily, though in some cases retention and suppression of urine have been well marked symptoms. The fæcal evacuations are usually semi-solid, of a black colour and grumous appearance, and have a highly offensive odour. The urine passed in small quantities often contains albumen, frequently lithates in excess, and a diminution in the chlorides. The chief points observable with reference to the circulation are, that the pulse is quick, soft, small, irregular, and easily compressed, occasionally dicrotous, indicating a marked degree of diminished intra-arterial tension. The heart's impulse is weakened, sometimes scarcely perceptible, and there is almost a complete absence of the first sound at the apex. No distinctive cardiac bruit is audible. Turning to the digestive system, the tongue is found to be dry, of a dark-brown or almost black colour, incrustated with thick, dark, russet-brown fur, tremulous, with an abundance of sordes on the lips and teeth. Hiccough is also present, at times frequently distressing, the breath having a peculiar heavy, offensive odour. The skin is in some cases dry and hot, with a surface temperature of 102° to 104° F.; in others it is bathed with a cold, clammy sweat, the temperature then being subnormal. There is also impairment of the general tactile sensibility of the skin, together with taches bleuâtres, and extreme muscular weakness. It would appear that there are at least two distinct types of the "typhoid state," the one characterised by a marked elevation of temperature—pyrexia in a high degree; the other in which a subnormal temperature obtains, an apyrexial type. Thus in the "state" we must admit three main factors for consideration: (1) the existence of pyrexia, whether of a "sthenic" or "asthenic" type, more frequently the latter; (2) the essentially important part played by the nervous system in tending to induce such a "condition;" and (3) in some cases (surgical) the possibility of auto-inoculation and septic infection, together with the absorption of the waste products of decomposition. In the more dependent parts of the body ecchymoses appear—especially over parts usually exposed to pressure; there is a general lividity of the limbs, and petechiæ are scattered here and there over their surfaces. The respiration is, as a rule, hurried and shallow, sometimes becoming stertorous. The physical signs of hypostatic congestion of both pulmonary bases are well marked in many cases. It would be highly advantageous if one could

have the opportunity of making a detailed post-mortem examination, with a microscopic examination of the tissues, as well as of the blood and other fluids, both during life and after death.

4. *Prognosis and treatment.*—In determining the prognosis of the "typhoid condition" difficulty and responsibility beset the practitioner, and, as in other morbid conditions, an expression of opinion must be guarded and based on a sound and broad consideration and estimate of the chief symptoms. The most important prognostic indications seem to lie in: (1) the effect produced upon the higher nerve centres; (2) the condition of the heart and blood vessels; (3) the condition of the kidneys and the result of a careful urinary analysis with special reference to the presence or absence of albumen or sugar; and (4) the condition of the lungs. In the treatment of the "typhoid state" the cause of that condition must be the guiding principle, and in every instance the only correct and rational method of treatment will be based on a thorough knowledge of that cause. In the light of "general principles of treatment" attention must specially be directed to the nervous phenomena and the condition of the heart and circulation generally, not omitting such good and careful nursing as will husband the patient's strength as much as possible and tide him over a critical period. The administration of such drugs as the perchloride of iron in combination with the hydrochlorate of quinine and liquor strichniæ every four hours is clearly indicated and is most likely to be attended with an improvement in the patient's condition; benefit is also derived from hypodermic injections of ether, strychnia ($\frac{1}{50}$ gr.), morphia ($\frac{1}{6}$ gr.), and nitroglycerine ($\frac{1}{200}$ gr.), when the "exhaustion" is very pronounced. In order to maintain the force of the cardiac systole, and the tone of the cardiac muscle, such tonics as digitalis, convallaria, strophanthus, spartein, and cactus grandiflorus are of the utmost service; the last-named drug I have found very useful in five to ten-minim doses of the liquid extract combined with quinine and opium. The free but judiciously guarded use of alcohol in the form of brandy, brandy and egg-and-milk, and brandy and meat-juice, is of the utmost importance. The alcohol must be administered with other liquid food at regular intervals, and the quantity determined by the condition of the pulse and temperature. Rectal feeding must also be resorted to in order to supplement the ordinary method, and to assist in supporting the patient. Local applications, such as tepid sponging with vinegar and water, the wet pack to the head and limbs, also mustard-leaves or poultices to the præcordia, and hot bottles to the sides and feet, are of considerable value. Attention to details of treatment, careful investigation into the condition of the

excretory and other organs, and minutiæ of thoughtful and intelligent nursing will all materially assist in bringing about a satisfactory and successful issue.—*The Lancet, August* 17, 1895, *p.* 397.

[See also article on this subject by Mr. Norman Hay Forbes under "Surgery."]

6.—THE DIAGNOSIS OF CONCEALED TUBERCULOSIS.

By B. K. Rachford, M.B., Clinician to the Children's Clinic, Medical College of Ohio, Cincinnati.

The purpose of this paper is to show that concealed tuberculosis, which is one of the most common diseases of childhood and young adolescence, is characterised by a well-defined group of clinical phenomena, which, if rightly understood, can be depended upon to establish a diagnosis.

Concealed tuberculosis means for the most part a tuberculosis of deep-seated lympathic glands, but it may also include a beginning tuberculosis of bones and serous membranes, or of any other tissues so located in the body that they may conceal for a time an active and obstructive tuberculosis. The great clinical importance of this phase of tuberculosis depends on the fact that it may continue for a long period of time without pulmonary tuberculosis or general tuberculous infection, and that during this time it is, as a rule, amenable to treatment; but, if overlooked or neglected, it may develop into a pulmonary, a meningeal, an acute miliary, or some other incurable form of tuberculosis. Tuberculosis of lymphatic glands is much the most common and most important form of tuberculosis in childhood, and only in a small minority of cases is it associated with pulmonary tuberculosis; and in these cases the pulmonary tuberculosis is, as a rule, secondary to the glandular tuberculosis. One may say, therefore, that nearly all tuberculosis in childhood begins as glandular tuberculosis, and that a minority of these cases afterward becomes pulmonary, meningeal, or general tuberculosis. Glandular tuberculosis is pre-eminently a disease of childhood; it almost always begins and usually spends its activity or terminates in a more active form of tuberculosis before the twentieth year. Primary infection occurs, as a rule, in the tracheo-bronchial or mesenteric lympathic glands—that is to say, in the deep-seated or hidden lymphatics—and is therefore in the beginning a concealed tuberculosis, and as such it may remain for months or years, with slight or no evidence on the part of the external lymphatics of the destructive tuberculous disease within.

The clinical observations upon which this paper is based were made in the children's clinic of the Medical College of Ohio and in three convents of the Good Shepherd in or near Cincinnati. The inmates of these convents, like all others of the same order, are notoriously tuberculous communities. They are young girls between the ages of six and twenty, most of whom have inherited a predisposition to tuberculosis, and all of whom are more or less exposed to the contagion of tuberculosis in the convent. The lives of many of these girls before entering the convent have been spent in unhygienic apartments, surrounded by tuberculosis, poverty, and crime. It is not surprising, therefore, that the records of these convents show that, of the last forty-one deaths occurring among these girls, all but two were due to tuberculosis.

With these preliminary remarks in explanation of my theme and of the opportunities which I have had for studying it, I shall ask attention to the following observations concerning its symptomatology :—

(1) Family history of tuberculosis is, as we shall see, a very important aid to interpreting the value of certain signs and symptoms in the diagnosis of concealed tuberculosis.

(2) History of exposure to tuberculous contagion, especially in infancy and early childhood, is also of importance in sustaining the diagnosis of concealed tuberculosis.

(3) Pronounced anæmia without apparent cause is strongly suggestive of concealed tuberculosis. In young convent girls of tuberculous stock this symptom may, as a rule, be relied upon to make a diagnosis of concealed tuberculosis, even though other symptoms of this disease be wanting. This very strong statement is based upon careful clinical observations and is strongly supported by the following facts :—Glandular tuberculosis, the most common form of tuberculosis in childhood, produces much more profound anæmia than pulmonary tuberculosis, and it is the form of tuberculosis most commonly concealed.

(4) Irregularity and early appearance of the menstrual function may be an evidence of concealed tuberculosis. I have also noted that the premature menstruation of tuberculous girls does not mark the onset of the establishment of the normal menstrual function. On the contrary, it is, as a rule, followed by great irregularity and abnormity of this function. These observations do not in any way contradict the well-known clinical fact that amenorrhœa is a common symptom of advanced tuberculosis.

(5) A scant and pale menstrual flow, followed by a leucorrhœal discharge, may result from a concealed tuberculosis. This condition is very commonly associated with irregularity and early appearance of the menstrual function as a sign of concealed tuberculosis in convent girls.

(6) Dyspnœa and pain in the side on slight exercise may be symptoms of concealed tuberculosis. These symptoms are important, since they occur very often in convent girls who present very little or no evidence of pulmonary tuberculosis, and anæmia is commonly but not always associated with them. Dyspnœa and pain in the side are, I believe, not infrequently symptoms of a concealed tubercular bronchial adenopathy. These symptoms are made worse by any exercise, and, like anæmia and irregularity in the menstrual function, they are ætiologically related to a tuberculous inheritance.

(7) Proneness to catch cold is so commonly an evidence of concealed tuberculosis that its importance as a warning or as an indication that active concealed tuberculosis may exist in the bronchial or other lymphatics can scarcely be exaggerated. Tubercular bronchial adenopathy, which is one of the commonest forms of tuberculosis in childhood, may and often does exist for years without any more characteristic symptoms of tuberculosis than anæmia and proneness to catch cold. Frequent slight attacks of acute bronchitis, and frequent attacks of coryza occurring during the cold and disagreeable winter months are warning signs that should not be neglected. A child that "catches cold easily" should always be carefully examined for other symptoms of concealed tuberculosis.

(8) Abnormal dwarfishness may be an evidence of concealed tuberculosis. By an abnormal dwarf I mean not only one that is under weight, but one that also lacks symmetry in development. The relation of weight and girth of chest to height is of special importance in this particular. A marked disproportion between the weight and height, when associated with poor chest development, should prompt a careful search for other signs of concealed tuberculosis. It is my belief that dwarfishness of body, as indicated by weight and by a variation from the normal relation of height to weight and chest development, is, as a rule, the result of disease, and that the disease which most commonly causes this condition is tuberculosis; this offers an explanation for the fact demonstrated by William Townsend Porter, that abnormal dwarfs are incapable of doing the ordinary work of their grades in the St. Louis public schools.

(9) Progressive failure of health as a symptom of concealed tuberculosis is closely associated with abnormal dwarfishness. This is the symptom that most commonly calls attention to the fact that there is something the matter with the child, and prompts the mother or guardian to seek medical advice.

(10) Neurotic disease in children is very commonly an indication of concealed tuberculosis. In dispensary practice nervous anæmic children over six years of age with a family history of tuberculosis are, as a rule, themselves tuberculous. I have

elsewhere called special attention to the "tuberculous neuroses of childhood," and have emphasized the importance of suspecting tuberculosis as a factor of every neurosis of childhood. General nervous irritability, hysteria, and incontinuence of urine are the neuroses most commonly associated with concealed tuberculosis. In dispensary practice I look upon incontinence of urine, when it exists without apparent local cause, or when it fails to disappear on removal of local cause, as very suggestive of tuberculosis. Sixty per cent. of the children presenting themselves at my clinic for incontinence of urine have tuberculosis, and forty-five per cent. of all the children with well-marked neurotic disease are tuberculous. Or perhaps a better idea of the value of neurotic disease as a symptom of tuberculosis may be derived from the fact that thirty-four per cent. of the last four hundred and seven tuberculous patients taken from my dispensary records had well-marked neurotic disease.

(11) Dyspepsia, associated with chronic diarrhœa or obstinate constipation, may be caused by a concealed tuberculosis. Obstinate constipation, dyspepsia, and profound anæmia are often grouped as evidences of a deep-seated glandular tuberculosis, and in children between the ages of six and twenty chronic diarrhœa, with anæmia and a tuberculous family history, is suggestive of intestinal and mesenteric tuberculosis. It is very important, however, to remember that the diarrhœa of concealed tuberculosis is not by any means always due to a tuberculosis of the intestinal mucous membrane or of adjacent lymphatic glands, but is very commonly a tuberculous neurosis due to general more than local influences. This is an explanation for the fact that chronic diarrhœa even in a tuberculous child is, as a rule, amenable to treatment.

(12) Enlargement of external lymphatics, accompanied by a pronounced anæmia not otherwise explainable, is one of the most important signs of concealed tuberculosis. But the superficial glandular enlargement when not accompanied by other symptoms is of little value either in diagnosis or as an indication of the severity of the deep-seated glandular disease, since a very destructive tuberculosis of the bronchial or mesenteric lymphatics may exist with little or no involvement of the cervical or other external lymphatic glands, or *vice versa*. In the outline of the symptomatology of concealed tuberculosis presented in this paper I have attempted a contribution to the early diagnosis of tuberculosis in children and young adults between the ages of six and twenty. This is the period of life when tuberculosis hides itself away in deep-seated structures and slowly and stealthily proceeds with its work of destruction. It often does irreparable damage before it openly announces its presence by the following signs and symptoms: Caseation of

lymphatics, cold abscesses, eczema, phlyctenular ophthalmia, corneal ulcers, suppurative inflammation of the eyelids, otorrhœa, mastoid disease, amenorrhœa, and inflammations of bones, joints, and lungs.

The early diagnosis of glandular tuberculosis in children is important for two reasons :—(1) It is curable ; (2) when entirely recovered from, it affords partial protection against pulmonary tuberculosis later in life ; by this observation I mean to say that a child which has recovered from a glandular tuberculosis is not so likely to have pulmonary tuberculosis during early adolescence as his brothers and sisters who have either not had glandular tuberculosis or have not recovered from it in childhood.

[The preceding is an excerpt from Dr. Rachford's paper in the *New York Medical Journal*, August 10, 1895, p. 173.]

7.—THE PROGNOSIS OF SYPHILIS.

By Henry Fleischner, M.D., New Haven, Conn.

[This is an excerpt taken from Dr. Fleischner's paper.]

As to the first question—danger to life. It is my opinion that the disease as now met with is a serious menace to life. It is true that the vast majority of the afflicted are cured, but a fair proportion, even of the cured, are undermined in health for the rest of their lives. Not directly is death due to the specific lesions, but the individual develops a propensity to take on disease which is phenomenal. Aside from the chronic structural diseases of various organs, pneumonia, pleurisy, typhoid fever, and allied diseases are more likely to affect the luetic than others, and the prognosis of these cases is exceedingly grave. The kidneys, liver, stomach, and the various important glandular organs are often found afflicted either with gumura or induration or lardaceous degeneration, and lead to a fatal termination, or the arteries become aneurysmal, or the nerve tissue undergoes degeneration, and the patient dies.

Under no circumstances is it possible, during the very early period of the disease to determine what the ultimate outcome of it will be so far as the patient is concerned. Treated according to classical methods, it is reasonable to expect improvement within three months, and complete subjugation of the symptoms in no more than six months, from the beginning of the treatment. If this does not obtain, it is fair to conclude that the case will not only be tardy and continue rebellious to all treatment, but that the patient will have to content himself with a very precarious sense of security against remote afflictions, if not against lesions that may terminate his life.

As to the likelihood of complete recovery, there is this to be said:—Fortunately, even at the present time, when syphilis is much more serious than it was some years ago, there are still many cases which, without any treatment whatever, go through their initial lesions without remote consequences to perfect health. There are more cases which develop so-called secondaries which are absolutely benign, *i.e.*, non-destructive, and passing off in due time, are never followed by serious consequences. All this, too, without treatment, or what amounts to the same thing, insufficient treatment. Closely allied to this question is the very important one of the likelihood of very late manifestation in any given case. There is this to be said: It goes without saying that the more robust any individual is the more free from any disease taint, such as rheumatism, tuberculosis, scorfula, the more vigorously all the functions of the economy are performed, the less likely is it that late and destructive lesions will show themselves. The more treatment a person has had the safer he is. Let him but have had enough to impress the disease, and he is safer than one who has never had any. It was formerly held that very mild early syphilis was most likely to be followed by very serious manifestations of the later type. I do not think that this is so. I have been in practice long enough, and have a sufficient number of cases on my roll to be able to say that, in my experience at least, it has been the rule that syphilis, if mild in the beginning, is mild all the way through. Not only that, but suppose a case rapidly responding to treatment, neglected because of such response, breaks out again after a number of years, what type will the late outbreak assume? It may be mild or severe; it will certainly be quickly influenced by treatment. Of peculiar interest are the very late outbreaks and the prognosis of them. I mean cases where the victim, after some sort of—perhaps very good—treatment, has gone on for many years without the least trouble, and suddenly, perhaps after thirty years, manifests the gravest kind of skin or internal lesions. I think the prognosis not so very bad, certainly if the history shows that in early life the early symptoms were readily abatable, I should expect the same results now. It is a fact, though, that although cases mild and easily amenable early in their course possess a good prognosis. Very quick cases, I mean, such where late lesions come on precipitately and are exceedingly destructive, do of right belong to the same category. In such cases it seems that the very virulence of the disease promotes the quick elimination from the system. It is the cases that are obstinate, never very severe, never entirely abated, running along with treatment from month to month, finally from year to year, slowly getting better meanwhile, but very slowly; these are the cases with

a bad prognosis as to complete cure, with a sombre future even in distant days.

The question of the utmost importance to society is—May luetics marry? From the standpoint of absolute and unfeeling justice, it is proper to answer this in the negative. But, not every thing on earth is absolutely right and just, and oftentimes human judgment is criticisable.

This has been observed :—Syphilitics without treatment have begotten healthy children, and the wives of such have lived on year after year uninfected. Certainly with treatment the chances of such results are increased manifold.

After the lapse of a few years the likelihood of the mother becoming infected, either through the father or child, is reduced to a minimum. Early pregnancy may result in miscarriage and dead-born children. This does not seem to affect the mother appreciably. A time comes when the probability of healthy progeny being born predominates, and it passes on to the time of certainty of natural and vigorous viability of children. The mother usually, nay, almost always escapes. Marriage is a matter of chance for both contracting parties at its very best, and both man and woman have to take each other with all open and concealed faults, with known and unknown defects, entirely on trust. The element of syphilis is but one of these things, and the girl and her children that are to be must take their chances. This statement is made without regarding the subject of treatment, or the larger one of the State's duty to limit the spread of the disease. It is simply my statement of my opinion that it is no crime against individual or society for a person afflicted with this disease under certain circumstances to marry and rear children. That these circumstances and treatment, freedom from symptoms for a certain length of time, and robust health in other respects, must be self-evident ; but it is undeniable that the "sum total of human happiness" would be diminished if every luetic victim was sentenced to permanent celibacy. Allowing that many of the children born with the taint require treatment to render them viable, it is still an advantage to the race that they be born. It is a fact that many of the children of syphilitics do not need any treatment, that they are vigorous and fully equipped for the struggle of life, and the very fact, which is fully proven, that such persons are not proof against primary infection shows that in them the disease has become attenuated to almost nothing, and is an argument in favour of allowing syphilitics to marry. It is a serious question, and cannot be answered categorically. In each case all the salient features of the case must be earnestly considered before the physician is entitled to give his consent, the chief points being not so much the quality, quantity, and

duration of treatment as the amenability—the response of the case to the remedies employed.—*Yale Medical Journal, March*, 1895, *p.* 191.

[The author then discusses the effect of treatment on the prognosis. He considers the prognosis influenced for good by good and prolonged treatment, but he looks upon iodide of potash as inferior to mercury. By treatment he means mercury and mercury alone.]

8.—THE DIAGNOSIS OF MALARIA.

By Philip Kilroy, M.D., Springfield, Mass.

In 1880 Laveran first discovered one variety of a protozoon, which is to-day recognised as the determining cause of the disease, and which we call the polymorphous parasite of Laveran—polymorphous, for it assumes different forms in different localities and in different types of the disease, and sometimes even in similar types in the same locality. And thus it was that we have had such contradictory testimony by competent authorities, some having observed one variety of the parasite, others a different one. There are four main types of the protozoon of malaria:—(1) Spherical bodies; (2) segmented bodies; (3) flagellæ; (4) transition bodies.

The spherical bodies—which are the most important because the most numerous and most frequently present—are small, movable structures of pale colour, hyaline transparent, devoid of nuclei, sometimes showing, when free in the blood, two or three flagellæ or thread-like processes; but when they have invaded a corpuscle or attached themselves to it (and the latter is the more probable occurrence) they are devoid of these ciliary attachments. Having invaded or adhered to a corpuscle, the spherical body rapidly grows in size, and frequently exhibits ameboid movements, which give it a constantly changing appearance. These ameboid structures are commonly called plasmodia. The spherical bodies contain granules of black pigment—the greater the size of the body the greater the number of pigment spots. Sometimes the spots assume a circular arrangement inside the edge of the parasite; sometimes they are irregularly distributed and endowed with movements of very irregular character, sometimes fast, sometimes slow, and in various directions. It is very probable that the ameboid movements of the bodies are due to the movement of these spots, as they have been observed to be coincident.

As the spherical bodies grow in, or on, a corpuscle, the colour of the latter disappears, from a destruction of its hæmoglobin, the corpuscles gradually become transparent, while the parasitic

body becomes a deeply pigmented mass which may now undergo segmentation, forming the second variety, or segmented bodies.

These are also spherical in form, but regularly segmented, with the melanin formed from hæmoglobin destruction in the centre, the whole suggesting in appearance a full-blown rose or a marguerite. The segments gradually develop into independent spherical bodies, the decolourised corpuscles are disintegrated, and at the end of two or three days, according to the type of the disease, this new generation of spherical bodies results in a fresh attack.

The flagellæ, or third variety, are sometimes free in the blood, sometimes (as already mentioned) attached to the spherical bodies. They are long threads, endowed with a rapid, snake-like movement, a movement that frequently sets the neighbouring corpuscles in vibration. They are found in about one case in five, but the difficulty of seeing them (it being probably impossible to see them when not in motion) may account for their apparent rarity. Their movements are best observed about twenty minutes after the blood has been taken from the patient. They have a life of their own, but which is quickly killed by quinine.

The transition bodies, which are said to be characteristic of the fall and winter Roman fever, as well as of all the various atypical malarial manifestations, are crescent-shaped bodies, transparent and colourless. They differ from the spherical bodies in that they have but little pigment, and that only in the centre, and while the spherical bodies adhere firmly to a blood corpuscle, the transition bodies never do. If these should happen to be in contact with the corpuscle, a blow on the slide will easily displace them. Their ends are either sharp or round, and frequently we can discern a fine line on the concave side of the crescentic body, joining the ends. The central pigment is changed hæmoglobin. The general appearance and character of these bodies, their size and lack of any evidence of life or motion, has suggested the probability of their being semi-destroyed and changed blood corpuscles, a belief which more modern investigation has disproved.

There is an essential difference in the appearance of the parasites of tertian and quartan malaria. In tertian, the ameboid movements of the spherical bodies are more active than in quartan. In tertian the decolourisation of the corpuscles is rapid, while in quartan the colour remains almost until the corpuscle is disintegrated. The spherical bodies are smaller in tertian, and with smaller pigment spots, than in quartan ; but the most striking and most reliable difference is in the process of segmentation ; in tertian there being almost twice as many segments formed from one parasite, the segments being naturally

smaller. If, then, during a malarial attack we examine the blood, and find decolourised red corpuscles in which a parasite is undergoing segmentation into fourteen to sixteen parts, we can say with positiveness that the fever is tertian; while if there are but seven or eight segments we can diagnose with equal positiveness quartan fever.

At the onset of an attack, or in the fever period, we are more apt to find the spherical bodies. The segmented bodies occur chiefly during the cold stage or in the intervals, while the transition bodies are mostly observed in the chronic forms of malaria, malarial cachexia, and malarial neuralgias, and also in those who have acquired a tolerance for the poison. While, with a good oil immersion lens, we can usually detect the parasites in the natural blood, still, for the sake of precision and to guard against confounding plasmodia with the red corpuscle of poikilocytosis, the blood should be stained. The best results are probably obtained from the dried specimens. A drop of blood is squeezed between two cover-glasses, by means of pincettes rather than the fingers, as the vapour from the latter may change the hæmoglobin; when the blood has dried in the air it is heated in the usual way, and then treated with a staining solution. For practical purposes a cover-glass heated for a few minutes in an alcohol flame is dried sufficiently, although an exposure to a temperature of 100 to 120 degrees Celsius for a few hours gives better results. If overheated the parasite may become fixed, and not take any stain. In mounting preparations with Canada balsam, the latter should be dissolved in xylol rather than in chloroform or turpentine, as these latter decolourise the corpuscles. The parasites of malaria are best stained by methyl-blue, and a staining fluid consisting of one part of a concentrated aqueous solution of methyl-blue and two parts of a 1 per cent. alcohol solution of eosin gives beautiful results, in which the hæmoglobin of the red corpuscles is stained an eosin red, the eosinophilous cells a deep strawberry red, and the ordinary leucocytes and the malarial parasites blue.—*Boston Medical and Surgical Journal, August* 8, 1895, *p.* 137.

9.—TREATMENT OF DIABETES MELLITUS BY URANIUM NITRATE.

By Samuel West, M.D., F.R.C.P.Lond., Assistant Physician St. Bartholomew's Hospital, Senior Physician Royal Free Hospital, London, &c.

[The following abstract of Dr. West's paper read before the British Medical Association, 1895, appeared in the *Medical Press and Circular.*]

A short account is first given of the physiological action of uranium, of which, however, little is known, except that in poisonous doses it acts as an irritant poison, and ultimately produces albuminuria and also glycosuria.

Diabetes having been selected as the disease in which to try the effect of the drug, it was administered to a number of out-patients, and they all agreed in stating that their thirst was relieved, the quantity of urine reduced, and their general health improved. Then systematic investigations were made upon patients under close observation. Two cases have been under observation for over a year, and very frequent determinations of the urine made. The results have been set out in the form of tables or curves upon which are indicated the times at which the drug was administered. The patients were all placed upon a fixed diet and under constant conditions, so that the only variation in their condition should be the administration or withholding of the drug. The first case was that of a lad of 22. He was admitted into the hospital and placed upon the ordinary diet for three weeks or so before the drug was administered. This produced some improvement, and the percentage of sugar and the quantity of urine fell from an average of seven pints to five, the percentage of sugar also falling from about eight to between six or seven.

On the administration of the uranium, in small doses gradually increased, the effect was first shown upon the quantity of urine, which was diminished considerably, falling from an average of five to an average of three pints. The percentage of sugar also fell from about five to about three. The drug was administered for about two months without intermission, being gradually increased to 15 grains three times a day. At the end of that time the percentage was about one. The drug was then stopped. The percentage of sugar rose again to about what it had been before, that is, to between five and six per cent. Uranium was then readministered and increased gradually. As soon as about seven or eight grains were being taken, five times daily, the percentage suddenly fell to about three, and with its continued administration it was finally reduced to under one, indeed, under half per cent., where it remained for nearly four months, the patient having all this time gained health and weight, being nearly one stone heavier than when the treatment was first commenced. The drug was then given up again, and about Christmas time the patient did not seem so well, possibly in connection with the festivities. The percentage was then found to be between six and seven, and shortly after this it actually reached 10 per cent. for one or two days.

Uranium was administered again, and after about a month the percentage rapidly fell, and at last was again under half per

cent. The quantity of uranium was reduced, the patient taking about five grains daily, and when he left the hospital a little later the percentage was between two and three, but he was very well and much heavier than when he was admitted.

He was not seen again till the autumn, after an absence of about four months, during which time he had taken no medicine. The percentage was then found to be again between six and seven, and uranium was once more administered. He was only seen from time to time, but within a month the percentage had fallen to four. At Christmas time it rose again, and the uranium was given in 15 gr. doses. A month later the percentage had fallen to a little over one, and that was the condition when the patient was last seen.

The second case, that of a lady of about 45 years of age, was a private patient who had been under treatment for some time before uranium was administered. She was then passing about 1,800 cc. of urine, and between two and three per cent. of sugar. The uranium was given, and very soon the reduction in the quantity of urine was marked, the amount falling to about 1,000 cc. Later the percentage of sugar also fell to one, and then under one, and after the administration of the uranium for about two months the sugar entirely disappeared from the urine, and remained absent, with one or two exceptions on odd days, for more than four months. At that time, though the uranium was continued and the diet also remained the same, the percentage rose again to two. The patient was a good deal worried by changing houses and domestic bothers, to which, as well as to the irregularities of diet, the relapse was doubtless due. Uranium was continued, the amount of sugar fell again, but did not entirely disappear.

In February the patient was seized with a very severe attack of influenza, and was exceedingly ill. The uranium was stopped for the time, and, as I afterwards learnt, was not subsequently resumed. The influenza caused a great relapse in the diabetes, the amount of urine increasing largely, and the percentage of sugar rising over three. As the patient recovered from the influenza the percentage fell, the amount of urine, however, still remaining large.

When seen six months after the influenza the patient looked feeble and ill, though very much better than she had been ; the percentage of sugar was between two and three, and the quantity of urine about 1,600 to 1,800 cc. daily, that is to say, she was about in the condition in which she was when she was first seen by me. It is proposed to administer uranium again by-and-bye.

The third case is that of a patient who was in the hospital, treated in the usual way for diabetes, and with various drugs, but chiefly with codeia. She had reached a condition of

equilibrium, and was passing about 7 per cent. of sugar, an amount which had been fairly constant for many weeks. She was then placed upon uranium nitrate, at first five grains, and later ten grains, three times a day. The small dose produced no effect, the large dose showed its effect rapidly in the reduction of the amount of urine, on the average from six pints to four, and when the drug was still further increased to fifteen and twenty grains, the percentage also fell, and on leaving the hospital it was only four.

The administration of uranium, therefore, seems to produce striking results in diabetes. It causes first a reduction in the amount of urine, and subsequently a great fall in the percentage of sugar. As the patients were under constant conditions in respect of diet and general *régime*, it is fair to refer all these results to the action of the uranium, for the administration of the uranium caused the quantity of the urine and the percentage of sugar to fall ; on withholding the uranium both increased ; on giving it again both once more fell, until in the one case the sugar entirely disappeared from the urine, and in the other almost entirely.

Although uranium does not cure diabetes, it seems to have a power of controlling the secretion of sugar greater than is possessed by any other drug I am acquainted with. It is suggested that its action may be due to its power of checking amylolytic digestion, and that it may be most useful as an adjuvant in those cases of diabetes in which diet largely influences the amount of sugar, so as in such a case to lead even to the complete disappearance of sugar from the urine. —*Medical Press and Circular*, *August* 14, 1895, *p.* 153.

10.—SOME POINTS CONNECTED WITH PERNICIOUS ANÆMIA.

By T. Grainger Stewart, M.D., Professor of the Practice of Physic at the University of Edinburgh.

I wish to show you the patient A. B., who exhibits in a perfectly typical form the features generally recognised as characterising pernicious anæmia.

You observe that the pallor is greater than is that in C. D., who is also profoundly anæmic in consequence of copious loss of blood, and of E. F., who is suffering from chlorosis. You observe in A. B. the lemon tint of the skin and the minute hemorrhages scattered over the arms. Similar hemorrhages are seen by the ophthalmoscope when the retina is examined. There is also

a history of a good deal of gastric disturbance at times, and occasional attacks of diarrhœa. The spleen and lymphatic glands are of natural size, the red corpuscles are diminished to one million per cubic millimetre, while the hæmoglobin shows thirty per cent. The red corpuscles are of a singularly irregular form, some angular, others of normal shape, but small, and occasionally an abnormally large and pale corpuscle is to be seen. The leucocytes are increased.

The circulatory system shows feebleness of the heart's action and pulse, with characteristic hæmic murmurs, the arteries poorly filled between the beats.

The respiratory system is normal, although of course the patient is breathless on exertion.

The integumentary system shows the pallor and the minute hemorrhages already described, with some œdema of the eyelids and a slight tendency to puffiness at the ankles.

The urine is, as you see, free from albumin and sugar, but the colour is like that of brown sherry, so great is the amount of pigment that is being discharged in consequence of the disintegration of the red corpuscles.

The reproductive system shows in this case no feature of special importance, except the arrest of the catamenia.

The nervous system is marked by the tendency to neuralgia, the occasional ringing in the ears and indistinctness of vision, the want of muscular vigour, the sleeplessness, and the diminished power of mental effort.

The locomotory system shows only debility of the muscular system. These features, taken along with the occasional febrile attacks which the patient describes, afford a very fair illustration of pernicious anæmia.

Now, we know that our case of anæmia from hemorrhage, C. D., will probably soon be quite well, for we confidently expect to check the loss of blood, and that which has been lost will soon be replaced. With regard to the chlorotic girl, E. F., we are even more sanguine. She will certainly be well and able to resume her work in a few weeks. But what is to be our prognosis in the case of A. B.? There was a time when a diagnosis of pernicious anæmia was held equivalent to the signing of a death-warrant. I wish now to show you that, although the prognosis must be grave, and even anxious, it is by no means hopeless, for many cases recover, and that under various lines of treatment.

I show you first a female patient, G. H., whom many of you saw under treatment last session. She then exhibited all the features which I have pointed out to you in A. B., and she told us that before admission to the hospital her case had been given up as absolutely hopeless.

Her red corpuscles were considerably below one million per cubic millimetre, and now you perceive that her colour is good. She describes herself as quite well, and able to perform all her duties without help. She has a good appetite and good digestion, and her corpuscles to-day are close upon four million per cubic millimetre, while the hæmoglobin has risen from thirty-two per cent. to sixty-four per cent. The treatment in this case consisted in rest in bed, with careful dieting, at first with milk and beef tea, afterwards with fish and other food as she could bear it. She also had pills of two grains of β-naphthol thrice daily, and these were persevered with until they brought on some diarrhœa. They were then discontinued, and a pill containing two grains of the protochloride of iron and one-sixtieth of a grain of arsenic was substituted. I cannot say that I traced any improvement under the β-naphthol treatment, but the iron and arsenic soon began to tell. A gradual improvement in all the symptoms manifested itself, and after about two months' treatment she was able to leave the infirmary, her corpuscles having risen to three million per millimetre. You understand the principle upon which the β-naphthol was employed. It was given as an intestinal antiseptic according to the recommendation of my friend Dr. William Hunter, who has contributed so much to the elucidation of this malady, and, although it did not materially help us in this case, it is a remedy in which I have much faith.

I show you next a patient, I. J., who was treated mostly by my friend Dr. Gibson during the time that he was in charge of my wards last year. The patient had lived abroad in India, and suffered from malarious fever, and after returning home had become profoundly anæmic. His anæmia was so marked that Dr. Gibson had recourse to transfusion of blood, and some benefit accrued therefrom; but the use of the β-naphthol seemed to him to be more markedly beneficial, and, in his opinion, much of the complete recovery which I now show you is referable to this drug.

My own results with transfusion of blood in this disease have been less satisfactory than those of some of my friends, but I should certainly advise you to employ it in any case in which simpler measures have failed.

But of all the good results of treatment that I have had I should give the foremost place to this patient, K. L., whom I now introduce. He was first sent to me by my friend Dr. Skinner, of Lauder, in 1890. He was then 50 years old, and complained of loss of appetite and great debility, and showed extreme pallor, with a lemon tint of skin. It so happened that Dr. Wm. Hunter visited my ward with me soon after his admission. We examined the case carefully together,

and Dr. Hunter remarked that it was about the most typical case of pernicious anæmia that he had ever seen. For some weeks after admission, while he was being treated with arsenic, he grew worse and worse ; delirium recurred every night, and sometimes persisted during the day. He got but little sleep, and complained greatly of headache. His case seemed absolutely hopeless. A little quieting of the nervous system was effected by the use of morphine and paraldehyde, and it was decided to try a plan which I have frequently employed for the relief of anæmia of the brain in certain cases of aortic incompetence, by administering tincture of the perchloride of iron in large and often-repeated doses. He got 20 minims of this preparation well diluted every two hours, and, to my surprise, it was well borne by the stomach and the liver. After giving it with that frequency for some days, a degree of improvement was apparent, and we went on pressing the medicine, although less frequently, for eight weeks. By this time his corpuscles had increased to upwards of one million five hundred thousand, and by degrees it went up to above two millions, all the unfavourable symptoms disappeared, and fourteen weeks after admission he was able to return to his home in the country.

In March, 1891, he had a slight relapse, and came back to the infirmary. He had again become anæmic, with all the old features, but in a less severe form. Under the same treatment he again improved, and went home in a month. I have seen him on many occasions since, and his health is completely and so far as we can judge, permanently re-established.

Now, it is commonly said that ferruginous tonics fail in all cases of pernicious anæmia, but in this case they undoubtedly saved life, and I should like you from this experience to learn that cases apparently hopeless may recover under treatment with iron.

I wish that I could now show you also a man, M. N., who illustrated to some of your predecessors the value of arsenic. I need not repeat the details of his illness, and would only say that his case was also typically characteristic, and was the first in which I saw medicine effect a cure. Iron failed with him, but a perseversing use of arsenic in the form of Fowler's solution was followed by the best results.

While thus anxious to encourage you to employ medicines hopefully in this malady, which bears such a bad name, I must also warn you that you will not unfrequently fail to give relief, and that even when temporary recovery has been obtained you must not be surprised at relapses. Some of you will remember the case of O. P., which gave so much satisfaction towards the end of last winter's session. You remember that he was an iron-grinder of 36, and had been ill for three years. Along with

all the characteristic features of pernicious anæmia he showed, on January 6, only 18 per cent. of hæmoglobin and one million one hundred thousand red corpuscles per millimetre. Arsenic failed to produce relief, but under β-naphthol improvement set in. On February 13 the hæmoglobin had risen to 46 per cent., and the corpuscles to two million seven hundred thousand. On March 28 the hæmoglobin was 60 per cent., the corpuscles four million per millimetre. The naphthol was given sometimes in doses of 2 grains, sometimes in doses of 3 grains, thrice daily, and it produced diarrhœa on more than one occasion. From January 23 onward he had only 1 grain three times a day, and in addition he had 2 grains of protochloride of iron with like frequency. The great improvement which occurred seemed due to these remedies. After a few weeks in the Convalescent Hospital he went home, to the neighbourhood of Falkirk, so well that he had thought of resuming work, but ere long a relapse occurred, and in May he returned to the infirmary worse than ever. We tried the remedies which had succeeded before, and did all that we could to rescue him, but his case resisted all treatment, and he died. The autopsy showed the changes characteristic of pernicious anæmia.—Clinical Lecture delivered at the University of Edinburgh, *International Clinics*, vol. iv., series iii.

11.—THE NEW ANTIDOTE FOR OPIUM POISONING.

By William Moor, M.D., of New York.

The number of deaths caused annually by opium poisoning is so great that the knowledge of a prompt, efficient, and safe antidote to opium is a matter of importance. Special studies and experiments extending over a period of two years have convinced me that permanganate of potassium is the true antidote to opium and its alkaloids, especially morphine. While it was known long ago that morphine is readily oxidised by this salt of potassium, the latter being reduced to hydrated manganese dioxide, yet it has not been shown that the oxidisation of morphine renders it perfectly innocuous, entirely void of any toxic properties. Furthermore, it may have been thought that the contents of the stomach would reduce the permanganate so quickly as to render the latter useless for antidotal purposes. I have shown that a solution of permanganate of potassium will decompose sulphate of morphine infinitely more rapidly than it would decompose albuminous matter. A striking demonstration of the astonishing selective faculty of permanganate of potassium for morphine can be shown by mixing 250 grains of the white of an egg with one ounce of water, dissolving in this mixture

one grain of sulphate of morphine, and adding rapidly to the whole just one grain of the permanganate dissolved in one ounce of water. After thoroughly mixing, not a trace of morphine can be detected, which conclusively proves that the molecules of the antidote instantaneously selected the molecules of morphine without being interfered with by albumen, though the quantity of the latter so greatly exceeded the quantity of morphine. I should state here that one grain of permanganate oxidises exactly one grain of morphine.

My experiments with the new antidote were made chiefly upon myself. This should not be deemed an unnecessary procedure when we consider how unsatisfactory is experimentation on animals with opium or morphine. It is well known what enormous quantities of this poison the lower animals can ingest with impunity. H. C. Wood and David Cerna have given to a dog, weighing 15½ kilogrammes, 2·4 grammes (37 grains) of morphine ; yet at the end of the experiment the air movement and the rate of respiration were practically what they had been in the beginning. Caldwell gave in one experiment 1·11 gramme (17 grains) to a dog without producing any serious symptoms. To a number of other dogs 0·78 gramme (12 grains) were given hypodermically with no ill effects. Another disadvantage of experimenting on dogs with morphine, given by the mouth, is that these animals generally vomit after ingestion of the poison. In rabbits I have noticed the peculiar fact that doses of morphine which when given hypodermically will cause profound narcosis have no effect whatsoever if administered by the mouth. In one instance I gave a rabbit five grains of the sulphate of morphine by the mouth without noticing the slightest effect. On the other hand, one grain of the alkaloid administered hypodermically invariably caused pronounced narcosis.

Being extremely susceptible to the action of narcotics, I consider myself a fair subject for such experiments. I was able to take in one instance (January 9, 1894), three hours after a light supper, in the presence of several well-known physicians of this city, three grains of sulphate of morphine, followed in about 30 seconds by four grains of potassium permanganate—for safety's sake one grain more than necessary—both in aqueous solution. I was perfectly confident that the antidote possessed such a wonderful affinity for the morphine that it would instantaneously select it from among the contents of the stomach, and thus render harmless what might have easily been a fatal quantity to one so susceptible as I am to even very small doses of this alkaloid. Had only one-eighth of a grain of morphine been absorbed into the circulation I should have felt it undoubtedly. Only a few weeks ago (January 20) I took, about two hours after breakfast, five grains of sulphate of

morphine in one ounce of water, followed in a few seconds by eight grains of the antidote dissolved in eight ounces of water, without experiencing any effect whatsoever from the narcotic.

In cases of poisoning by any of the salts of morphine eight or 10 grains (0·5 to 0·6 grammes) of the antidote, dissolved in one pint (500 c.cm.) of water, should be administered at once, and repeated at intervals of thirty minutes, once or twice. In case of poisoning by the alkaloid morphine itself (not its salts), or by opium and its preparations, it is advisable to acidulate the antidotal solution with one or two teaspoonsful of diluted sulphuric acid or white vinegar (not red vinegar) by which the insoluble morphine will be at once converted into the soluble sulphate or acetate. Of course the amount of the antidote to be given depends on the amount of the poison ingested. If, for instance, two or three grains of morphine were taken it is sufficient to give three or four grains of the antidote in solution by the mouth. In case the patient is unable to swallow I would suggest, in order not to increase by the use of a stomach-tube the cerebral congestion already present, to introduce into the patient's œsophagus, through the nose, a hard rubber catheter, which is attached by means of a piece of soft rubber tubing to the end of a glass funnel, and pour into the latter the antidotal solution. This simple method proved very feasible in a case of opium poisoning which occurred in my practice.

A weak solution of the antidote, say one grain to a tumblerful of water, should be administered by the mouth from time to time, even after all the opium or morphine in the stomach is supposed to have been rendered inert. I state this for the following reason :—It is now a well-established fact that morphine which is injected subcutaneously is excreted by the mucous membrane of the stomach. Hitzig, of Halle, by washing out the stomachs of animals that had received morphine subcutaneously succeeded in obtaining fully one-half of the injected amount during the first hour after the injection. It is a logical necessity that an antidote which acts instantaneously must destroy in the stomach a certain amount of poison that got into the circulation either through hypodermic injection or through absorption by the stomach, for it is evident that the same circulation which conveys the poison from the peripheral parts of the body to the stomach must also bring back to the latter a part of the poison which previously was absorbed by it.

I have found that the hypodermic administration of permanganate of potash is of benefit also in cases of opium poisoning. While a part of the potash salt is reduced by the subcutaneous tissues, yet enough remains to find its way to the circulation to select the morphine out of the albuminous constituents of the blood.

Rabbits which had received morphine by hypodermic injection were greatly improved by the hypodermic administration of the antidote. Several cases of opium poisoning were reported to me in which the subcutaneous injection of the antidote was of unmistakable efficacy. Up to this date to my knowledge about 35 cases of opium poisoning have been successfully treated by permanganate of potash. In many cases the antidote was given by the mouth and hypodermically, in some cases only by the mouth, and in others only subcutaneously. In many instances several hours had elapsed before the antidote was administered.

As regards other alkaloids and inorganic poisons, I have found that permanganate of potassium, even after contact of several hours' duration, has no oxidising effect upon atropin, hyoscyamin, hyoscin, cocain, aconitin, veratrin, pilocarpin, muscarin, caffein, and phosphorus. Furthermore, it will give up its oxygen much more quickly to albuminous matter than to strychnine, oxalic acid, colchicum preparations, and hydrocyanic acid. The first condition for permanganate of potassium to act as an antidote to any toxic substance is that it shall act instantaneously upon the poison by oxidising it, else it would be unreasonable to administer it not knowing the amount of organic matter present in the patient's stomach at a given moment. This condition is met with morphine and eserine, the permanganate being capable of selecting instantaneously these two alkaloids amongst other organic matter, like albumen and peptone, which happen to be present in the stomach, and, therefore, the remarkable salt of permanganic acid is a positive antidote to opium and calabar bean.

I conclude by expressing the earnest hope that these lines will aid in diminishing the number of serious and fatal accidents due to opium poison.—*British Medical Journal*, *June* 22, 1895, *p.* 1369.

12.—THE TREATMENT OF GOITRE AND EXOPHTHALMIC GOITRE BY DESICCATED THYREOIDS.

By E. Fletcher Ingals, M.D., with the collaboration of Henry G. Ohls, M.D., Chicago.

[After giving a historical survey of the subject and the detailed account of six cases, as well as short reports of cases treated by other medical men, the article concludes as follows :]

With my six cases treated by internal administration of the desiccated sheep's thyreoids, and those reported to me by personal

letter, I have, all told, 50 cases of goitre, not including 1 case of advanced exophthalmia, in which the patient died one month after treatment began. In these I find the following results :— The swelling was reduced in 38 cases ; swelling not affected in 11 cases ; no report in 1 case.

Of the cases where no improvement was noted the remedy was used only five days in 1 and a week in another. In 4 cases the goitre had existed from six to twenty-five years and perhaps was largely cystic, though not specified.

I have reports of 7 cases of myxœdema, with the following results :—Improved, 5 ; not affected, 1 ; unknown, 1.

Of these, in 1 case the patient improved for seven weeks and then deteriorated, though treatment was continued for three months. Two cases of obesity without other disease are reported. One of the patients lost five pounds ; one gained five pounds.

The symptoms noticed after the administration of this remedy, observed in the various cases reported by me and reported by personal letter, have been :—Headache in 18 ; no unusual symptoms in 8 ; no report, 24 ; dizziness in 20 ; no unusual symptoms in 5 ; no report in 25 ; trembling in 14 ; no unusual symptoms in 5 ; no report in 21 ; rapid pulse in 11 ; no unusual symptoms in 6 ; no report in 33 ; weakness in 17 ; no unusual symptoms in 10 ; no report in 23 ; back-ache in 1 ; nausea in 7 ; no report in 43 ; lost weight in 25 ; gained weight in 2 ; mind improved in 2 ; nervousness in 1 ; uterine contractions in one.

Conclusions.—From a consideration of the history of this subject and an analysis of the cases which we have presented, the following conclusions seem to us justifiable :—(1) Thyreoid products produce marked physiological effects upon the nervous and circulatory systems, as indicated by headache, dizziness, pains in other portions of the body, and great weakness, and by flushing of the face and rapidity of the heart's action. (2) Some of these unpleasant symptoms usually occur when a daily dose is reached corresponding to one and a half or two entire thyreoid glands of the sheep. (3) If the administration of the remedy in doses that cause such symptoms is continued for a few days, constitutional effects are produced indicating that persistent use of doses of from six to twelve grains of the dried thyreoid (equivalent to one or two thyreoid glands) three times daily might produce fatal results. (4) Desiccated thyreoid glands appear quite as active as the liquid extracts and more stable. (5) Internal administration appears quite as effective as hypodermic medication. (6) For internal use, the adult dose of the desiccated thyreoids should not exceed two grains three times daily at first, but the dose may be gradually increased to

two or three times this quantity, provided it does not cause unpleasant symptoms. There is no evidence that moderate doses have an injurious effect. (7) The remedy in some cases has a pronounced effect on the body weight, but this is very uncertain and varies so greatly in different persons, and in the same individual at different times, that there is strong reason for suspecting that the loss of weight which sometimes follows this administration may be due entirely to disturbance of the digestive organs. (8) In the treatment of myxœdema the remedy has undoubted value and appears to benefit quite a large percentage. In these cases it is probable that the best results will be obtained by giving it at intervals for a long time. (9) In exophthalmic goître the remedy causes rapid reduction in the size of the gland, but it has no perceptible effect upon the exophthalmia, and it apparently aggravates the heart symptoms. In this disease it must be used guardedly and its effects must be carefully watched. (10) In many cases of goître internal administration of full doses of the products of the thyreoid is followed by a most remarkable diminution in the size of the diseased gland. Improvement or cure may confidently be expected in seventy-six per cent. of the cases, but sufficient time has not yet elapsed to determine what the final results will be. It is probable that cystic growths in the thyreoid gland would not be influenced by this remedy. (11) Clinical experience has not yet demonstrated that this remedy is of value in other diseases, but its effect in diminishing the size even of very firm and hard enlargement of the thyreoid gland would certainly justify experimentation in other directions.—*New York Medical Journal, September* 7, 1895, *p.* 302.

13.—THERAPEUTIC EMPLOYMENT OF THE SUPRARENAL GLANDS.

By George Oliver, M.D., F.R.C.P.

[In a paper read before the British Medical Association, 1895, Dr. Oliver made the following remarks on the remedial properties of the suprarenal gland :]

The experiments in the laboratory have afforded useful information in four directions bearing on the clinical side of this inquiry. First, they have clearly and decisively shown in what way the product which the blood derived from the adrenals affects the organism, thus illustrating the function of the gland, and suggesting the lines on which it may be rendered useful as a therapeutic agent. Secondly, they have demonstrated that very large doses may be administered to the dog, cat, &c., without apparent injury or loss of life ; and it may be inferred

from this fact that comparatively large doses may be taken by man without risk of harmful result. Thirdly, they indicate that the stomach may be chosen as the best avenue for administration; for we have found that predigestion by pepsin and hydrochloric acid does not impair in the slightest degree the activity of the extract. This fact in regard to the suprarenal glands agrees, therefore, with the general experience of the effective ingestion of the thyroid gland. And fourthly, our experiments show that the powdered gland dried *in vacuo* is the best preparation; for our results were equally decisive, whether produced by an extract of the fresh gland, or by one derived from the powder of the dried gland, even though the latter had been kept for many weeks.

The preparation employed, and the mode of administration.—In the earlier part of this inquiry I employed a tincture and a dried aqueous extract; but I now prefer tablets of the dried gland (gr. iii, and v in each), which are equal to about five times their weight of the fresh gland. I have always found it best to maintain the effect by administering a tablet at regular intervals—for example, twice or three times a day within an hour after meals. I have given the adrenal preparation for lengthened periods without observing any injurious effect: for instance, a patient has taken the tincture (℥ xv = gr. xv of the fresh gland) three times a day for just twelve months. Moreover, in one case of diabetes I did not observe any distressing effect from eight gr. v tablets (each equivalent to grs. xxv of the fresh gland) taken three times a day for a week. But this is the only case in which I have given comparatively large doses. I have always preferred to feel my way, guided mainly by a sense of well-being in the patient, and the readings of the arteriometer; and whenever I have observed signs of undue arterial tension and of oppression, or a marked degree of infrequency of the pulse (as in one case a reduction to 54), I have either diminished the dose or given it less frequently. In the majority of cases a 3-grain tablet three times, or after a time twice a day, or a 5-grain tablet twice a day, has sufficed to maintain a favourable effect.

[Dr. Oliver describes the clinical indications for this treatment under the following headings;—(1) Addison's disease, (2) loss of vaso motor tone, (3) anæmia, (4) cyclic albuminuria, (5) diabetes mellitus, (6) diabetes insipidus, (7) exophthalmic goitre, (8) heart disease, (9) capillary hemorrhage. Under Addison's disease the author makes the following observations:]

My opportunities of observation have been limited to two cases. In one, the symptoms were not quite so definite as one could have wished, but in the other they were pronounced, and the diagnosis had previously been made by Dr. Pye-Smith. In

this case anæmia, asthenia of the heart and of the muscular system, anorexia and the characteristic pigmentation were present in a marked degree. The bronzing was observed on the temples, sides of neck, the ears, the chest, abdomen, and axilla. There were no pigmentary patches, however, within the mouth. The suprarenal treatment was commenced on July 21st, 1894, and has been continued up to the present. When I saw the patient last December I found the bronzing very much reduced, and the patient was in every respect much improved; her appetite and digestion were good, and the nausea was but rarely felt. Her ability to take her usual exercise was restored. A recent report from her medical attendant, Dr. Mackern, of Blackheath, shows that the improvement continues so long as the suprarenal preparation is regularly taken. Occasionally it has been omitted for a week, when the patient is certain that the pigmentation on the forehead becomes more decided. It must not, however, be supposed that every case—or indeed the majority of cases—of Addison's disease will respond to suprarenal treatment in so striking a manner as in this instance; for it will be remembered that a very large number of the cases depend on tuberculisation. It is, however, not improbable that now and then cases may be met with in which the function of the adrenal glands may become lowered by some temporary cause, or may become impaired or crippled by a pathological state which has ceased to advance, or which may advance but slowly, and the influence of which only becomes more particularly apparent when the general health fails, from whatever cause. Then it may be that the suprarenal material introduced by stomachal ingestion will provide physiological aid of prime importance by merely supplementing the diminished autogenic supply. We have yet to learn whether suprarenal feeding will enable life to be maintained when the secretory function of the adrenals is abolished by disease.—*British Medical Journal*, *September* 14, 1895, *p.* 653.

[The following article may be read in connection with the foregoing.]

14.—NOTES ON A CASE OF ADDISON'S DISEASE, RECOVERING DURING THE ADMINISTRATION OF EXTRACT OF SUPRARENAL BODY.

By E. Lloyd Jones, M.D., Camb.

The fact that Addison's disease has not yet been cured by the administration of suprarenal material is, I believe, sufficient excuse for the publication of the following rather curious case:—

Mrs. X. came to consult me on April 26, 1895, complaining of frequent sickness and of great weakness, with discolouration of the skin. Illness first commenced about two years ago, when she was seized with acute pain in the back, diarrhœa, and vomiting; began to get brown soon after, and has suffered from sickness and fainting attacks ever since, with some remission of the symptoms in the winter of 1893. (She believes that she became browner twenty-four years ago, when her first child was born.)

Sickness began to be very troublesome in May or June, 1894, and has continued ever since. She has suffered from more severe attacks of faintness since last summer. At first she used to "feel a bit faint," but of late "goes quite off," and has been found in an unconscious state; she has not been free from sickness or faintness for a single day for some months; she is sick two or three times every day, at all hours, often before rising in the morning or in the night. There is much pain in the back. The face is very brown, but does not show any emaciation; the conjunctivæ are very white; the lips pale, with brown discolouration along their lines of contact. There is very marked pigmentation on the neck, axillæ, anterior aspect of the elbows and wrists, nipples, about the umbilicus, and a very dark band extends round the waist and from the umbilicus to the pubes. Tongue fissured and pigmented at the side. Pulse 116 per minute, very small, very soft. Heart dulness natural; apex beat natural position, soft systolic murmur at base and at apex and audible (same murmur?) in neck. Lungs natural. Stomach displaced downwards; lower curvature reaches very nearly to the pubes. Grasp exceedingly weak. She was ordered peptonised milk at frequent intervals; suprarenal tabloids (Messrs. Burroughs, Wellcome & Co.) three per diem; and iodide of mercury.

April 30.—The number of tabloids increased to twelve; taken none of the mercurial iodide; is better; has not been sick to-day for the first time for months.

May 1.—No more sickness.

May 4.—A little sickness the last few days, felt faint at times. Ordered vin. ipecac., tinct., stroph., āā ℥ ij. aq. ad ℥ ij. secundis horis. Has taken no iodide.

May 7.—Pigmentation much less. Hands and arms appear quite natural, except over right antecubital region.

About this time, after the sickness had become less frequent, she began taking small doses of perchloride of mercury, iodide of sodium, and reduced iron; and the preparation of suprarenal was changed. Messrs. Benger prepared for me a 1 in 2 extract, and of this she took, and still takes, one ounce and a half each day. She has left home now for a holiday. She has not been

sick for a month, and can eat almost any food. The excessive pigmentation has quite disappeared, and she appears to be practically well.

I do not wish now to comment upon the case, or to make suggestions as to its nature, but record it in the hope that others may be induced to give the remedy a trial. Four or five years ago I prepared some extract of suprarenal, but the case for which it was got ready proved eventually to be of another kind from what we had suspected. Dr. Rolleston, in his valuable Goulstonian lectures on the suprarenal capsules, has recently advocated the use of suprarenal material, but so far as I am aware, no case has yet given a successful result.—*British Medical Journal*, *August* 24, 1895, *p.* 483.

15.—THE SERUM TREATMENT OF DIPHTHERIA.

By J. W. Washbourn, M.D., F.R.C.P.,
Physician to the London Fever Hospital; Assistant Physician to Guy's Hospital, &c.

[In a discussion on Serum Therapeutics before the British Medical Association, Dr. Washbourn observed that the discovery of serum therapeutics marks a distinct epoch in the history of medicine. In dealing with diphtheria he made the following remarks:]

The presence of a local lesion, in which diphtheria bacilli can be readily found, renders the diagnosis at an early stage an easy matter. The disease, too, is a common one, the clinical features well known, and statistics of mortality have been kept for many years past at a number of hospitals both at home and abroad. We are thus in a position to judge of the efficacy of any method of treatment which has been extensively tried.

The value of the antitoxin treatment has been tested in two ways—the one is the clinical method, the observation of the effect of antitoxin upon the course of the disease; and the other is the statistical method, the comparison of the mortality of a series of cases treated by antitoxin with that of similar series treated in other ways.

In order to arrive at a correct conclusion by either method certain precautions must be taken, and it will be my duty to point out the fallacies that may arise.

Let us first consider the statistical method; and here I may say that I only propose to treat the matter from a general point of view, for I have been given to understand that the details of the statistics are to be discussed in another Section. We

know that all statistics are open to fallacies if the number of cases is not sufficiently large, and if other precautions are not taken into account.

In diphtheria the age of the patient is a most important factor in determining the mortality. The statistics of the Metropolitan Asylums Board clearly demonstrate this point. Out of 4,435 patients under five years of age, admitted into the Board hospitals between the years 1888-1894, the mortality was 49·9 per cent.; of 3,723 patients between five and ten years it was 28·1 per cent.; of 1,330 patients between ten and fifteen years it was 10·6 per cent.; and of 1,972 patients between fifteen and forty years it was 4·6 per cent.; the mortality in each quinquennium between fifteen and forty being, roughly speaking, the same. It is thus obvious that in comparing statistics of mortality the age of the patients must be stated.

New methods of diagnosis may also lead to errors in statistics. The diagnosis of the cases treated by antitoxin have been verified by a bacteriological examination, while in former times this plan has usually been omitted. We must consider what effect this has upon the statistics.

A bacteriological examination enables us now to exclude from our statistics many cases of angina and croup which would formerly have been included. These cases are less severe than cases of true diphtheria, and on this account the older statistics of mortality are lower than they should be. On the other hand, a bacteriological examination sometimes enables us to recognise as diphtheria mild cases of angina which in former days would not have been included in the diphtheria statistics. I have no doubt that among hospital patients, at any rate, this class of cases is decidedly less frequent than the former class, consequently the mortality of cases in which the diagnosis has been verified by bacteriological examination should, *cæteris paribus*, be higher than that of cases in which the examination has been omitted.

Another point to consider is the varying severity of the epidemic. It is not common to meet with series of mild or severe cases occurring at irregular intervals. The only way to avoid this fallacy is to take either a large number of cases in each series, or to take a large number of series for comparison.

Since the introduction of the antitoxic treatment a large number of cases have been recorded in England, Germany, France, Austria, America, and other countries. Many of these are of but little value from the statistical point of view. Either the cases are isolated, or the age has not been noted, or previous statistics have not been recorded, or they have been rendered useless for comparison by the lack of some precaution or other. Nevertheless there remain over 3,000 cases recorded by different

observers, in which the mortality has been compared with that of cases not treated, and in which careful precautions have been taken to arrive at a correct conclusion.

In every series the statistics show a lower mortality than that obtained by other methods of treatment. In many instances the decrease in mortality has been remarkable, sinking to half that which it was before.

In no instance has a physician recorded a large series of hospital patients under his own care in which a careful comparison of the statistics has been unfavourable to the antitoxic treatment. Now, this uniform decrease of mortality, if not due to treatment, can only be explained either by the prevalence of a mild form of epidemic, or by mild cases being sent into the hospital by practitioners anxious to have the remedy tried. Neither explanation will hold water. In Roux's series, for instance, the epidemic was not a mild one, for the mortality at the Trousseau Hospital, where the remedy was not used, was up to the average. Again, in Berlin the supply of serum failed, and the mortality at once increased, again to fall when a fresh supply was obtained.

In a series of cases recorded by Drs. Goodall, Card, and myself, we did not make it known that the remedy was being used, so that no error could have arisen from mild cases being sent in. Nevertheless, the mortality sank to half the average, and to half that of a series of the same number of cases immediately preceding those under treatment.

From a careful and critical examination of the statistics hitherto published, I have no hesitation in saying that they definitely prove the vast superiority of the antitoxin treatment over any other method of treatment that has hitherto been adopted.

We will now consider what evidence is obtained by the clinical method of the efficacy of the remedy. The value of this evidence depends entirely upon the reliance we place upon the opinions formed by the individual observers. In reading the literature of the subject I have been struck by the fact that almost every observer who has had a large experience of diphtheria speaks in the highest possible terms of the value of the remedy; while criticism has come from those who have had only a slight experience of diphtheria, or little personal experience of the antitoxin treatment. I would maintain that both statistical and clinical evidence definitely prove that in antitoxin we possess the most valuable remedy that has ever been used in the treatment of diphtheria.

Having discussed the general question of the value of antitoxin, I will now speak of its effect upon the course of the disease.

Effect upon the Exudation.—The majority of observers are agreed that the exudation clears off more rapidly than with any other method of treatment. The effect upon the exudation may not be apparent for the first day or two. During the first twenty-four hours the exudation may even increase, but as a rule it soon begins to clear, and when once the process has started it rapidly terminates. When the larynx is affected, the rapid clearing of the exudation frequently prevents the necessity of performing tracheotomy.

Effect upon the temperature.—The temperature in diphtheria apart from complications, is not of great importance as indicating the severity of the attack; consequently the effect produced by antitoxin upon the temperature is not of great moment. My own experience would show that if the temperature is much raised the injection of antitoxin causes it to fall, but when the pyrexia is moderate no marked immediate effect is produced.

Effect upon the heart.—Antitoxin does not appear to have any direct effect upon the heart. With the general improvement in the patient's condition the pulse slows down and becomes regular, but this is not immediately manifest. There certainly is no reason for supposing that any deleterious effects are produced upon the heart.

Effect upon the kidneys.—The vast majority of observers give a very definite opinion that antitoxin produces no effects upon the kidneys. It has, however, been stated by some that nephritis and suppression of urine are directly caused by the remedy. This statement is so important that it requires careful consideration.

It must be remembered that death from diphtheria is often preceded by abundant albuminuria and by scantiness or suppression of urine. Other symptoms are usually present, especially those of cardiac failure; and it is extremely difficult to say whether the patient is dying through the heart or the kidneys. Both the effect upon the heart and that upon the kidneys are no doubt caused by the diphtheria toxin, and such cases should be more correctly described as deaths from the direct toxic effects of the disease.

Under the antitoxin treatment similar symptoms may precede death; but the opinion of those who have had a large experience is decidedly opposed to the view that the symptoms are in any way brought about by the treatment.

When antitoxin has been injected into healthy individuals as a preventive measure, or has been used for the treatment of non-diphtherial cases, albuminuria is not produced, showing that the remedy has no effect upon the healthy kidney. A single

case of nephritis after a preventive injection has been recorded, but I cannot help thinking that this was an accidental coincidence.

Effects on paralysis.—Before we can arrive at a conclusion as to the effect of the antitoxin treatment upon the occurrence of paralysis more extended observations are required. In this connection we must not forget that the more severe the attack of diphtheria the more likely is paralysis to supervene. Many fatal cases would probably have developed paralysis had they recovered. Consequently when the mortality is lowered by treatment the actual number of cases of paralysis may increase through this cause alone.

Associated conditions not affected by antitoxin.—There are certain conditions in diphtheria which are not affected by the antitoxin treatment. In many cases the exudation is invaded by various putrefactive bacteria which produce substances of a poisonous nature. The absorption of these substances increases the severity of the attack. Antitoxin has no influence upon these bacteria, and this complication can only be combated by the local application of antiseptics.

Again, a secondary invasion of the throat by streptococci not infrequently occurs, and may occasion a general septicæmia or localised inflammation in other parts of the body, especially in the lungs. This condition is also not affected by antitoxin. It is not always easy to tell from clinical observation when such a secondary invasion has taken place. According to Roux, Martin, and Chaillou, a bacteriological examination of the exudation gives valuable indications. The observations of Drs. Goodall, Card, and myself do not support this view. The question requires careful consideration, for it is exceedingly probable that this associated condition will, in the future, be successfully treated by means of a streptococcus serum.

Antitoxin rashes, joint pains, &c.—The injection of antitoxin frequently gives rise to the production of an eruption, and sometimes to pain in the neighbourhood of the joints. These conditions do not make their appearance until some days after the injection. They usually occur a week after the first injection, but may be delayed for as long as three weeks. The eruption varies in its character. It is generally erythematous or urticarial, and may be uniformly distributed over the body or may affect only certain parts, especially the extensor surface of the limbs. The erythema may be maculated or uniform.

Purpura has been observed in a few instances, but it is possible that some of the recorded cases were those of hemorrhagic diphtheria. The eruption is often accompanied by pyrexia, the temperature sometimes reaching as high as 104° F.

Joint pains are less common. The structures around the joints appear more affected than the joints themselves. Actual effusion into the joint may however occur. The hips, wrists, and ankles are most frequently affected. Pyrexia and the eruption above described generally accompany the joint pains.

These complications clear up after a few days, and no serious result has been recorded. Nevertheless they certainly retard convalescence, and an effort should be made to prepare a serum which does not produce these effects. I am the more hopeful that this object will be ultimately attained because experience has shown that certain samples of antitoxin more frequently produce these symptoms than do others. It is probable that the symptoms are caused by some other body in the serum than the specific therapeutic substance. At any rate I have seen similar symptoms produced after the injection of tetanus antitoxin.—*British Medical Journal, August* 17, 1895, *p.* 410.

16.—THE SERUM TREATMENT OF SNAKE BITE.

[The following is taken from a leading article in the *Australasian Medical Gazette.* It illustrates many points in the laborious investigations which have culminated in the serum treatment of disease.]

Sewall, in 1887, showed that animals could be rendered immune to as much as seven times a lethal dose of rattlesnake venom, by previous repeated inoculations of very small quantities of the venom. In 1891 Kanthack rendered animals resistant to cobra venom in the same way. He also made experiments to ascertain whether the serum of these resistant animals possessed any antitoxic properties. The results of his experiments were entirely negative, but in February, 1894, MM. Phisalix and Bertrand communicated to the Academy of Science, Paris, the facts that they had been able to partially immunise guinea pigs against viper poison by injecting a solution of the venom attenuated by heating to 80° centigrade, and that the serum of such resistant animals was possessed of antitoxic properties.

Three months later Calmette published the results of experiments on the same subject which he had made at the Pasteur Institute. Calmette succeeded in immunising rabbits, guinea-pigs, dogs, and asses against the venoms of a variety of snakes by injecting them with gradually increasing doses, until they could tolerate at one injection what would be many times a fatal dose for an animal not so treated. He found the serum of the immunised animals possessed of antitoxic properties analagous to those found by Behring and Kitasato, Tizzoni, and Roux and

Vaillard in the serum of animals immunised against tetanus and diphtheria. If, immediately subsequent to the administration of twice a minimal lethal dose of the poison, 4 c.c. of serum from an animal which had been rendered immune to a quantity of cobra poison equal to twenty times a fatal dose were injected under the skin of a rabbit, the animal was not even ill; whereas an unimmunised rabbit which had received the same quantity died in three hours. In cases in which the injection of the curative serum was postponed until alarming symptoms of poisoning had developed, the injection of larger quantities of the serum was followed by a favourable issue. Animals rendered immune against the venom of the cobra were equally resistant towards other varieties of snake poison, and the serum from an animal immunised against one kind of venom was as active in preventing the ill effects of an injection from other venoms.

Another observation of Calmette's is of considerable theoretical importance concerning the method of action of antitoxins. A fatal dose of cobra venom, mixed with a small quantity of serum from a well-immunised animal, may be injected into a rabbit without even producing any symptoms of poisoning. Nevertheless, if the mixture be heated to 60° c. for a few minutes before injecting, the animal succumbs. The antitoxic properties of the serum are destroyed at 60° c, but the venom unaltered. This experiment shows that the antitoxin contained in the serum exercises no direct action upon the poison, but that its beneficial action is due to its operation upon the tissues of the animal, by means of which they are able in some unknown way to withstand the action of the venom.

In June of this year Professor T. R. Fraser communicated the results of experiments which he had been conducting for some time past on the rendering of animals immune against the venom of the cobra and other serpents, and on the antidotal properties of the blood-serum of immunised animals. These experiments absolutely confirm the work of Calmette which was published in the previous year. Animals were immunised by administering to them a succession of gradually increasing non-lethal doses until the actual minimum lethal had been attained. The subsequent doses, by gradual increments, exceeded the minimum-lethal until each became as much as five times this amount, and still the animal suffered little or no appreciable injury. In one case the resistance was carried so far in a rabbit that it would withstand fifty times the minimum fatal dose for an ordinary rabbit without manifesting any obvious symptoms of poisoning.

When an animal has acquired a resistant power over the lethal dose of one venom, that animal is also able successfully to resist a dose above the minimum-lethal of other venoms. In

other experiments indications were obtained that animals immunised against a given venom are capable of resisting the toxic effect of that venom *more effectually* than the toxic effects of other venoms.

Neither Calmette nor Fraser have so far determined the duration of this acquired immunity. They have both, however, ascertained that it lasts for a considerable time, at least a month.

Fraser has obtained serum possessed of very considerable antitoxic powers from his immunised rabbits. His experiments with the protective serum are divided into four series. In the first series, a certainly lethal dose, capable of causing death in five or six hours, was mixed with the serum and injected under the skin. So small a quantity of serum as ·004 c.c. per kilogramme of the weight of the animal was, under these circumstances, sufficient to prevent death. When the dose of venom was doubled, ·6 c.c. was requisite, and 2 c.c. of serum per kilogramme counteracted the effect of four times a fatal dose.

The fourth series gives the clearest indications of the antidotal value of the serum. In these experiments the serum was injected half an hour after the introduction of the poison. When twice a fatal dose had been given, 5 c.c. of the serum per kilogramme of the weight of the animal was sufficient to prevent death.

The experiments of Phisalix and Bertrand, Calmette, and Fraser have established, on the clearest evidence, that the blood serum of animals protected against large doses of venom is able to prevent lethal doses of venom of the most poisonous snakes from producing death in non-protected animals, and there is no *a priori* reason why the treatment should not be equally efficacious when applied to man. From the records of cases of snake-bite, it would appear probable that even in India the victim has in the majority of fatal cases not received much over a minimum-lethal dose. It must, however, be borne in mind that the amount of serum which it is necessary to inject increases proportionately with the weight of the animal. In one of Professor Fraser's experiments, which has been quoted above, the injection of 5 c.c. per kilogramme of the animal's weight, half an hour after the introduction of twice a minimum lethal-dose of venom, was followed by recovery. Assuming that the conditions were the same in the case of a man of 11 stone, it would be necessary to introduce 350 c.c. of serum to produce the same result. Such a quantity would be unwieldly to inject, and the actual expense involved in immunising an animal of sufficient size to produce such an amount of serum would be so great as to exclude the remedy from practical application. There is, however, no reason to suppose that the limit of antitoxic power of the serum of artificially immunised

animals has been nearly reached at present, but, by the methods at present employed, that means the introduction of still further quantities of venom into the immunised animal, and although the antitoxic value of the serum may be increased, and the first objection abolished, it has at the same time become more expensive to produce.

But, as Professor Fraser says, an interest and importance as great as that which can be derived from the practical application of these facts, is to be found in the confirmation they afford to the evidence in favour of the curative value of the serum derived from animals immunised against the toxines of zymotic diseases.

The next important advance in the pathology of the zymotic diseases will likely be the discovery of the principle which underlies the action of curative serum. Calmette has demonstrated that the antitoxic value of the serum of animals immunised against snake poison is not due to a direct action of the so-called antitoxin on the poison, and this conclusion is probably equally true with regard to the antitoxins against diphtheria and tetanus. As it cannot operate upon the toxines directly, it must exert its beneficial effect indirectly, through influencing the activities of the tissues of the animal. The question which demands an answer is—How does antitoxic serum place the cells of the animals in a position to resist the poison? When the venom of the Australian black snake is subcutaneously injected into a dog it produces, amongst other results, an extensive disintegration of the red blood corpuscles, but if the animal be previously injected with the serum from another dog which has been immunised against this venom this destruction of red corpuscles does not occur, or, if so, only to a trifling extent in such a case, did the antitoxic serum induce a change in the red blood corpuscles, or had it so stimulated other cells in the body that they destroyed the toxine, and so the latter in reality never operated upon the corpuscles? The study of the manner in which antitoxins affect the details of the toxicological action of all these poisons will no doubt afford a fruitful line of research. There is no toxine the details of the physiological action of which are so well known as those of some varieties of snake poison. This poison would, therefore, be particularly adapted for such an investigation. Snake poison also possesses the great advantage over most other toxic proteids that it is much less sensitive to the operation of physical agencies, such as light and heat, and is comparatively easy to obtain in a form possessed of remarkably constant composition.

The efficacy of this treatment of snake poisoning in animals is undoubted, but it is not yet in a position to put off the swaddling clothes of the laboratory, and to take its place in our

system of practical therapeutics. The antitoxic power of the serum must be enhanced, or else a method discovered to separate from it the body or bodies which are the active agents. There will probably be no great difficulty in accomplishing the former alternative, and the separation of the at present hypothetical entity "antitoxin" will no doubt be accomplished at no very distant date. When this is done, the only difficulty in supplying the antitoxin in quantity will be a commercial one. To prepare a supply large animals must be immunised. This, however, at the present time, necessitates the employment of a considerable amount of snake venom, which is a costly commodity.—*Australasian Medical Gazette, August* 20, 1895, *p.* 340.

17.—ON STREPTOCOCCUS ANTITOXIN.

By T. J. Bokenham,. M.R.C.S., L.R.C.P., late Research Scholar to the British Medical Association.

[In a note read before the British Medical Association, 1895, on Streptococci and Streptococcus Antitoxin, Mr. Bokenham made the following remarks on this interesting subject :]

I am convinced that, for the preparation of a streptococcus antitoxin on the same lines as that of diphtheria, the source of the microbe is immaterial ; the only necessary is that its virulence should be as great as possible.

And here a difficulty at once arises. All who have studied this microbe are painfully aware of the readiness with which it loses its virulence when grown in the ordinary culture media. In very virulent streptococcus cultivation in bouillon will at once lessen its pathogenic powers, and so rapidly that, after a few generations, all virulence may be lost. Clearly, therefore, bouillon is not a suitable medium to employ when the maintenance of virulence is essential. Culture in the living body is also impracticable, for it does not afford a means of obtaining cultivations in sufficient quantity. One is therefore driven to seek some medium which is more free from these objections. I have successively tried hydrocele fluid, ascitic fluid, decalcified blood plasma (dog), prepared by Professor Wright, who kindly gave me a few tubes, rabbit's serum, and lastly the serum from the horse and the ass. None of these media were entirely satisfactory, for the microbes did not grow freely in them, in some cases not at all, and in no case was the virulence maintained during more than two or three generations. The least unsatisfactory of them was serum obtained from the ass. At length, however, it occurred to me to try if I could

get a more all-round suitable medium by using a mixture of bouillon (in which the microbe grows well, but loses its virulence) and of asses' serum (in which growth is less satisfactory, but virulence is less affected). Such a mixture has proved even more satisfactory than I had dared to hope. Not only does the streptococcus thrive exceedingly well in it, but it forms a powerful toxin, which varies but little even after several generations. A similar mixture prepared with horse serum is not nearly so satisfactory, but it may be employed in preference to ordinary beef bouillon, as virulence is only gradually lost.

My earliest attempts at immunisation were made on rabbits, but the tolerance of these animals is very slight ; and, although I succeeded in obtaining in them a condition of comparative resistance for the less virulent streptococci, I was not able to carry the immunity far. Using a culture freed from micro-organisms, the animals exhibited a variety of symptoms : (*a*) Under certain conditions they died after two or three days, having greatly lost weight and suffered from profuse diarrhœa. On examination the stomach and duodenal walls were intensely congested in patches, and occasionally hemorrhages were found of quite recent origin, quite similar to those seen after poisoning with some kinds of snake venom. (*b*) Others survived longer, but ultimately succumbed to a species of cachexia. (*c*) Others, again, recovered, but exhibited little or no tolerance, even after repeated injections. (*d*) In a fourth class death was preceded by well-marked paralytic symptoms, quite comparable to those described by Sidney Martin in his observations on diphtheria albumoses.

Using entire cultures, the risk of losing the rabbits was even greater. For practical purposes I therefore discarded the rabbit, and directed my attention to the ass and the horse. Either of these animals presents the advantage that it is capable of yielding a good quantity of blood without ill effects upon itself, but the ass is particularly suitable, being an animal possessed of great susceptibility, as is the case in the human subject, to the streptococcus. In both the horse and the ass it appears to be necessary to proceed with the greatest caution, as the reaction to even minute doses of filtered virulent cultures is far more violent than with diphtheria toxin, although similar in kind. I hope ere long to give full details regarding this work, but on the present occasion I am loth to take up too much valuable time, and will content myself with the statement that I have already succeeded in establishing a considerable degree of resistance, not only to the streptococcus toxin, but also to the virulent streptococcus itself. Furthermore, while I by no means regard the process of immunisation as completed, I find that serum obtained from this animal [ass] is already possessed of

some protective power. I find, however, that although no streptococci can be detected in the blood, serum obtained earlier than two weeks after an injection of streptococci has powerful toxic effects. It is therefore necessary to wait several days longer before attempting to demonstrate any immunising powers, and any serum that may in the future be issued for clinical use will certainly require to be tested with even greater care than is necessary with antidiphtheritic serum in order to ensure freedom from toxic properties.

Similar experiments are in progress on the Continent, both in France and in Germany, and the results which have already been announced by the foreign observers are so highly encouraging as to justify one in the hope that in "antistreptococcic serum" we may have a remedy of no uncertain value in erysipelas and all other processes which owe their origin to infection with streptococci. A combined "antidiphtheritic" and "antistreptococcic" serum is likely to be of far greater utility than anything we at present possess in the treatment of diphtheria, and such a serum will I hope, be soon obtainable.—*British Medical Journal, September* 14, 1895, *p.* 656.

18.—SERUM TREATMENT OF TUBERCULOSIS.

By Professor Maragliano, of Genoa.

After alluding to the curability of tuberculosis as proved by the evidence of the post-mortem room, and after referring briefly to the endeavours of Richet and Héricourt in France, of Babes in Hungary, and of Paquin in America, to discover an antituberculous vaccine, he submitted his own researches which had been pursued for three years, and which had resulted in the discovery of a serum having a specific curative action on tuberculosis, that is to say, a serum presumably containing tuberculous antitoxins. This serum he has obtained from dogs, asses, and horses, "by procedures different from those hitherto adopted, absolutely discarding cultures of living bacilli, and availing myself exclusively of the highly toxic principles extracted from these." By progressive vaccinations dogs are immunised against intravenous injections of very active tuberculous matter taken from the human subject. As the result of experiments to determine the potency of this serum, he has found that on injecting tuberculin together with a sufficient quantity of the serum into a tuberculous subject no reaction, either general or local, takes place, whereas the same quantity

of tuberculin injected alone produces both general and local reactions. Professor Maragliano considers that the capacity of a serum to neutralise the toxic effect of tuberculin is the best gauge of the therapeutic potency of an antituberculous serum. He has tried the serum clinically in 82 cases, including all forms of pulmonary tuberculosis from the gravest to the slightest, and has arrived at the following conclusions :—(1) Cases in which there are circumscribed foci of disease without any great degree of fever, and without any great admixture of other micro-organisms (diplococci, streptococci), are commonly benefited. He has used the serum in 45 such cases, and all of those (29 in number) in which the treatment was carried out systematically might be looked upon as cured. The remaining 16 improved greatly, but at the date of the report they were still under treatment, or, believing themselves to be cured, had declined to continue it. (2) Cases in which there are diffuse foci of tuberculous bronchopneumonia, but without any considerable association of other microbes, even if moderately febrile, are benefited in some degree, occasionally, to such an extent as to give grounds for hope that, by perseverance with the treatment, a complete cure may be effected. Of 14 such cases treated, all were improved, some to a marked degree. (3) Cases of diffuse bronchopneumonia, with considerable association of other micro-organisms, are not appreciably benefited by the serum treatment alone. Of 14 such cases under treatment, however, none got worse, and some even gained a little. (4) Cases of destructive bronchopneumonia with cavities derive some slight benefit from the treatment. Of 9 such cases 3 showed some improvement (reduction of temperature and increase of weight); 4 others were very slightly benefited, and in 2 the disease was not checked, but ran on to a fatal issue. The improvement, according to Professor Maragliano, is lasting, provided the treatment be continued as long as is necessary to bring about a cure. In some of his cases the cure has been maintained for two years; in others, in which the treatment has been abandoned prematurely, relapse has occurred. The mechanism of the curative action of the serum is believed by the author to be that by means of it defensive materials are introduced into the organism where they lead to the production of others. He deprecates any exaggerated expectations in advanced stages of the disease when there exist profound lesions of tissue, and he emphatically declares that "antituberculous serotherapy can be of use, and can reasonably be expected to effect a cure, only in those cases of pulmonary tuberculosis in which no destructive foci exist."

The duration of the disease is a secondary matter. The important points are the extent, intensity, and nature of the

pulmonary lesions. Another point of great moment as regards the result of treatment is whether one has to do with simple tuberculous infection or with a mixed infection. The association of diplococci and streptococci with the bacilli of tuberculosis retards or altogether neutralises the effect of the treatment. Hæmoptysis is not a contraindication, and indeed Professor Maragliano does not admit any contra-indication whatever ; he insists that the treatment is applicable in all forms of pulmonary tuberculosis. It is never injurious, and nearly always does good.

As regards the prophylactic value of the remedy, he has not yet been able to come to a definite decision, but he seems inclined to be hopeful on this point.

As regards the technique of the injections, a situation in which the subcutaneous connective tissue is loose should be chosen ; the site which he prefers is in the posterior axillary line towards the base of the thorax. Of course the most scrupulous aseptic and antiseptic precautions must be observed. The injections do not cause pain, and as a rule are not followed by local reaction ; in a few cases, however, there was some redness, swelling, and pain at the site of injection, occasionally with slight rise of temperature. All these phenomena disappeared in two or three days.

In cases in which there is no pyrexia Professor Maragliano begins by injecting 1 c.cm. on alternate days for ten days ; then he injects 1 c.cm. every day for ten days ; finally two injections of the same quantity are given daily for ten days. When there is pyrexia an attempt should be made to subdue it by high doses, and 10 c.cm. of serum should be given at once. If the temperature does not rise again, after three days a daily injection of 1 to 2 c.cm. should be given ; if, however, the fever persists, a second injection of 10 c.cm. should be given eight days after the first. The beneficial effects of the treatment show themselves, sometimes within a fortnight, sometimes not till after a couple of months. Even when cure seems to be complete the treatment should be continued for at least a month, and Professor Maragliano thinks it would be well by way of precaution to give a weekly injection of 1 c.cm. for at least a year. General hygienic treatment (climate, nourishing food, and particularly careful attention to the efficiency of the digestive apparatus) must on no account be neglected. Of the manner in which the antituberculous treatment just described may be combined with the treatment of accessory infections Professor Maragliano proposes to speak in a future communication.—[From an abstract of a paper read before the British Medical Association, 1895, and published in the *British Medical Journal*, *August* 17, 1895, *p.* 444.]

19.—THE VALUE OF TUBERCULIN AS A DIAGNOSTIC AGENT.

By Richard T. Hewlett, M.D., M.R.C.P.
Assistant Bacteriologist, British Institute of Preventive Medicine, London.

The possibility, or even probability, of the spread of tuberculosis by meat and milk is becoming more and more recognised, and the question of prevention is occupying serious attention. It has been found that a considerable proportion of beasts which to all outward appearances are healthy show tuberculous lesions when slaughtered, so that a reliable means of diagnosis would be of great value. Tuberculin seems to be an agent capable of effecting this, though its use is not to be recommended in the human subject. In cattle, an injection of 1 to 2 c.c., according to the strength of the preparation, into the neck is followed in eight to twelve hours by a rise in temperature of two, three, or four degrees if the animal is tuberculous; if it be healthy, there is no rise in temperature, or only an insignificant one. That the test is of great value, the following details and experiments of recognised authorities will prove.

Professor MacFadyean, in the "Report of the Royal Commission on Tuberculosis," says:—"I have no hesitation in saying that, taking full account of its imperfections, tuberculin is the most valuable means of diagnosis in tuberculosis that we possess."

A. Eber, of the Veterinary College at Dresden, experimented on 174 beasts, and found that 136, or 78·2 per cent., gave a typical reaction with tuberculin; 6, or 3·4 per cent., gave a doubtful reaction (a rise of 1° or 1·5°); while 32, or 18·4 per cent., did not react. Of the 136 beasts which gave a typical reaction, 22 were slaughtered, and in all these tuberculous lesions were found; of the 6 doubtful cases, 3 were slaughtered, and in 2 tuberculous lesions were present; while of the 32 which did not react, 3 were slaughtered and were found to be free from tuberculosis. (Ref. in *Centr. f. Bak.* xvii. 1895, p. 393.)

Professor Bang, of Copenhagen, injected 80 tuberculous animals with tuberculin; of these 73 gave a typical reaction, 2 gave a doubtful reaction, and 5 did not react. In the 2 which gave a doubtful reaction the tuberculous lesions were very slight, in the 5 which did not react the signs of tubercle were slight and not of recent date. (Ref. in *Public Health*, August, 1895, p. 392.) Professor Bang concludes that tuberculin fails in less than 9 per cent. of the cases. Where it fails, the lesions are either far advanced or are not of recent date; in these cases the reaction with tuberculin is not marked. It is to be noted also that the first injection is the important one, subsequent injections frequently failing to produce a reaction.—*Clinical Sketches, September*, 1895, *p.* 65.

20.—SEROTHERAPY OF TYPHOID FEVER.

[The following is an editorial taken from the *Medical Record*, August 17, 1895, p. 233. It indicates well the line of medical thought and investigation at the present time.]

We have several times referred to the attempts made by various investigators to obtain a curative serum for typhoid fever, attempts which have thus far resulted in nothing tangible.

Typhoid fever would appear, however, to offer an inviting field for the experimental use of antitoxin, for we find in it the conditions necessary for the successful application of a remedy of this sort. In the first place, the cause of the disease is known, and this cause is active in many of the lower animals as well as in man. Moreover, typhoid fever in all probability belongs to that group of infectious diseases which are self-limited, a cure being brought about by an immunisation of the system effected by the action of the pathogenic bacillus, and the immunity so acquired is permanent, or at least of long duration, a second attack of the disease, after the period of relapses is past, being an exceedingly rare occurrence. Finally, and this is a matter of very great importance in successful serotherapy, a patient with typhoid fever usually comes under treatment before the disease is at its height.

The most recent experiment in the use of antitoxin in the treatment of typhoid fever, and one that seems to give more promise of success than the others in this direction, is related by Drs. F. Klemperer and Ernest Levy in the *Berliner klinische Wochenschrift* of July 15, 1895. After some unsatisfactory attempts to produce a curative milk by inoculating goats, the authors set about obtaining an antitoxic serum. For the furnisher of this serum they selected the dog, which is naturally rather rebellious to the action of the typhoid poison. The first experiments upon animals seemed to demonstrate that this serum would make the recipient immune to the action of the typhoid bacillus, and would even abort the disease if employed a not too long time after infection.

Up to the time of the publication of their report the authors had used the serum in but five cases of typhoid fever in the human subject. Each patient received an injection of 20 c.c. for three successive evenings, or 60 c.c. in all. All the patients were in the first week of the disease. The injections were well borne, and no unpleasant results in the way of skin eruptions or albuminuria were observed. The morning remission in the temperature curve began as a rule on the third day after the first injection, and complete apyrexia was noted by the end of the second or beginning of the third week. In one case there was a slight relapse a week after the subsidence of the fever.

All the cases treated, as far as could be judged from the symptoms and temperature curve during the first week before the injections were given, were mild ones, and might have followed the same favourable course without treatment. The authors recognise this possibility, and make no undue claims for their remedy. The experiments, they hold, proved only two things—first, that the serum, if it is not curative, at least does no harm ; and secondly, that it does not cut the disease short, but possibly hastens its course and induces immunity somewhat earlier than the disease itself would if left untreated.

The results are not such as to inspire the hope of finding a specific for typhoid fever, but if it be found, on further trial, that the course of the disease can be hastened and its dangers averted by serotherapy, we shall at least have gained something. But five cases prove nothing, and until the serum has been employed extensively and in cases of all degrees of severity it will be impossible to predicate anything as to its real value.

[For other articles and notices upon sero-therapeutics and other bacteriological treatment, see *Synopsis* "Sero-Therapeutics," under General Medicine and Therapeutics.]

DISEASES OF THE NERVOUS SYSTEM.

21.—TREATMENT OF FEEBLE-MINDED CHILDREN.

By Fletcher Beach, M.B., F.R.C.P. Lond.,
Physician to the West End Hospital for Nervous Diseases, and to Winchester House Training Institution ; formerly Medical Superintendent of Darenth Schools for Imbecile Children.

[The following is taken from an article on the Diagnosis and Treatment of Feeble-Minded Children, with remarks on prognosis in *The Practitioner.*]

The improvement of these cases consists in a judicious combination of hygienic, medical, physical, moral, and intellectual treatment. It is necessary that these children should live on a healthy site and on gravelly soil, with a good water-supply, and well-ventilated rooms capable of being easily warmed in winter. Frequent baths, a plain but liberal diet, warm clothing, and plenty of exercise are also most essential. Medical treatment will be required for the scrofulous condition and phthisical tendency so often present ; patients of this kind will be much improved by the administration of cod-liver oil and the different preparations of maltine. Diarrhœa, especially in the summer,

is very frequent, and is best coped with by the administration of astringent remedies such as catechu and kino in the watery variety, and by small doses of carbolic acid in the fermentative form. Milk or milk and lime-water should be given; and if the diarrhœa, especially of the fermentative variety, is very obstinate, strong solutions of pearl barley will be found useful. Skin eruptions are often present, and must be controlled by appropriate remedies; and in cases complicated by epilepsy the administration of bromide of sodium in doses of 15 grains, and a diet from which meat must be carefully excluded, will be beneficial. The circulation in many cases is weak and the vital power low, so the treatment must be of a stimulating nature.

A few words are needed as to the craniectomy treatment of microcephaly which has been advocated in some quarters, and which has been performed several times with slight or no result. The treatment came into vogue in consequence of the theory that microcephaly was due to premature synostosis of the cranial sutures, and that by performing this operation the brain would be enabled to resist the pressure of the cranium. It is now known that this supposed synostosis rarely exists, and therefore craniectomy is not necessary. More good can, in fact, be accomplished by regular, methodic educational treatment than by this operation.

The treatment of cases of the cretinoid type by thyroid juice is most successful. It is best administered in the form of tabloids which contain five grains of the powdered extract of the gland. Of course the amount given must vary with the age of the patient, but for a child five years old one of these tabloids can at first be given daily; and when the cretinoid conditions disappear, one twice a week will probably prove sufficient to prevent the symptoms from reappearing. It is indeed necessary to keep up the treatment during the patient's lifetime, in order to secure a satisfactory state of health.

Another condition, which is often not recognised, and which produces a state of stupidity closely allied to mental deficiency, is caused by the presence of adenoid growths at the back of the nose. It is interesting to notice how soon this state will disappear when these growths are removed. The author has had two cases under his care at the West End Hospital, and the result of removal in each case has been satisfactory.

Coming now to the other parts of the treatment, it is necessary to keep in mind the fact that the physical defects present in these patients are closely associated with the mental deficiency; and, in order to improve the latter condition, the practitioner's attention must be devoted to the physical training of the child. Muscles which may be found wasted must be nourished by calling their functions into activity; and for this purpose

properly applied exercises are required. These exercises will also be useful in correcting the want of co-ordinating power so often seen, as shown by the absence of precision of the muscular movements. Simple movements of the body and limbs to music will be useful for this purpose; and so will be, in low type cases, the practice of throwing a bag of beans at the pupil, who first puts up his hand to protect himself against it, and then learns to catch it and throw it back. The power of co-ordination is also strengthened by the use of nail-boards, in which the nails are taken out and put back again; by the use of pieces of wood in the form of squares, triangles, oblongs, and circles, and fitted into corresponding depressions; by threading beads, paper plaiting, and similar exercises. The lower extremities may be further trained by walking upon or between the steps of a ladder placed on the ground, and by the use of apparatus such as is found in every gymnasium. If there be contractions or paralysis, the general as well as the special nutrition of the affected limbs must be increased by the application of galvanism and massage. When the muscular system has been strengthened, it will be found that the hands have less difficulty in performing the ordinary duties of life, locomotion will be improved, the eyes will wander less restlessly, and the listlessness and inertness so often present will disappear.

The moral treatment should go on side by side with the physical and mental training. Not only has obedience to be taught, but efforts have to be made to impart good temper and affection. Ideas of justice, duty, self-reliance, and perseverance have to be inculcated by the teacher, who must employ every means to cultivate the faculty of attention. The epileptic patients are liable to outbreaks of temper; but treatment suitable to the case, strict attention to diet, and separation for a time from the others will usually suffice to calm the child.

The intellectual treatment commences by cultivating the senses; and it is usual to begin by educating the sense of touch. The exercises which have previously been mentioned will conduce to this, as will the handling of rough and smooth substances, building with bricks, and the use of materials which are daily put into use. The sense of sight is educated to perceive colours by the aid of papers of various tints, which the child should match; form, by the use of the squares, triangles, &c., before alluded to; dimension, by placing pieces of wood together, and pointing out the differences between them; the notion of distance, by separating objects from each other, and then taking measurements from point to point in a room or out of doors. The sense of hearing is trained by teaching the child to discriminate between the various sounds presented to his ear, or by the aid of music; while a "speaking

drill," making use of the gift of imitation, will improve the faculty of speech. The senses of taste and smell are awakened by a series of experiments with disagreeable, or agreeable, odorous or odourless substances ; and the qualities of objects are thus ascertained. In many cases it is necessary to proceed from the simple to the complex, imparting ideas by the use of concrete forms, and not by abstract notions, taking care not to prolong the lessons so as to tire the pupil. Mere parrot knowledge is of no use in these cases. Whilst the other branches of education are going on, the patients should be taught to dress and undress, to be neat and tidy, and to use the spoon, knife, and fork.

The senses having been educated, higher branches of learning can be commenced, such as teaching the alphabet, reading by the method of word cards, writing, arithmetic, drawing, elementary geography, and the idea of weight and the value of money by what is known as the shop lesson. When some progress has been made, instruction in sloyd work, carpentering and gardening for boys, and domestic work or sewing for girls, will prove useful, alternating the industrial with the purely mental training. Varied amusements, both in summer and winter, must be provided.

In case the practitioner cannot undertake the treatment himself, it will be useful for him to know where these patients can be sent. Cases are admitted into Earlswood Asylum, Redhill, Surrey, from all parts of England ; while at the Darenth Schools, near Dartford, Kent, admission is limited to children whose parents live in London. Patients who reside in the Eastern Counties can be admitted into Essex Hall, Colchester ; and those inhabiting the Western Counties can gain admission into the Star Cross Asylum, near Exeter. The Royal Albert Asylum, Lancaster, provides for children who live in the Northern Counties, and the asylum at Knowle for those who inhabit the Midland Counties. Scotland has two institutions, one at Larbert, near Stirling, the other at Baldovan, Dundee. Ireland has only one training school, the Stewart Institution, Palmerstown, near Dublin. For children of the upper social class there are private institutions which educate and train these cases.

It is important that the treatment should be commenced as early as possible, for the older the child is when he comes under training the less chance there is of improvement and recovery. Many parents put off the education of their children, under the idea that they will grow out of their mental deficiency, or that some abrupt change will take place at the age of seven or fourteen ; but experience teaches that there is no ground for such an opinion.—*The Practitioner*, *July*, 1895, *p.* 39.

22.—THE RELATION OF EPILEPSY TO INSANITY.

By W. R. Gowers, M.D., F.R.C.P., F.R.S.,
Physician to the National Hospital for Paralysed and Epileptics.

[A discussion was introduced by Dr. Gowers at the 63rd Annual Meeting of the British Medical Association. The following is taken from this introductory speech :]

The first great fact of the relation between two diseases is their family interchangeability. This is less remarkable perhaps than it seems to be when we think of epilepsy only as a motor symptom. If we consider the frequency with which a sensory aura shows that it is in the sensory structures that the discharge begins, and if we consider the extreme frequency of minor attacks in which only loss of consciousness reveals inhibition of the structures related to psychical processes ; if we consider also the elaborate psychical character of many of the higher sensory warnings, I think it will be felt that the range of functional disturbance of epilepsy must include some part of the functions, the derangement of which, in another way, causes insanity. The extent to which insanity is to be traced in the families of those subject to epilepsy is approximately known. The extent to which epilepsy can be traced in the families of the insane is, I think, not yet known. It can only be known by combined observation, and this is one of the points which, I think, deserves combined effort—to ascertain facts upon an adequately large scale. We need to know, not only in what proportion of cases epilepsy can be traced, but also in what proportion in the different forms of insanity, and we need further to know its relation to a history also of insanity in the family, and also if any relation can be discerned between epilepsy as a family antecedent and the course of the forms of insanity in which it occurs.

I can only offer you some facts regarding the extent to which insanity can be traced in the families of the epileptic ; but I would impress strongly the importance of taking heed to the source of all information regarding inheritance, and, indeed, of separating the facts according to their source. The importance of this has been impressed on me in an emphatic manner by investigation of an additional series of cases of epilepsy for a new edition of my book on the disease. There is a tendency to concealment of hereditary disease among the upper and middle classes which is definite, but its influence is small compared with that of simple ignorance among the lower classes, who constitute the bulk of our hospital patients. The statistics I published in the first edition were almost exclusively

drawn from hospital cases. Of the second series, almost the same in number, now investigated, about a third were seen in private. The comparison of these with the rest is instructive.

Inheritance, epilepsy or insanity, was traceable in the first series in 35 per cent. In the second series the proportion was 44·5 per cent., but in the cases of this series seen in private the proportion was 48·4 per cent., or nearly half. But this, we may be confident, is below the truth, and that at least in one-half of the cases there is inheritance. The lesson is that statistics regarding inheritance taken from cases in lower classes are at least 30 per cent. below the truth, that one-third ought to be one-half, and that it is essential that the cases collected should be separately considered according to the position in life of the patients.

I mention this general fact on account of its importance, but we are now concerned with insanity only as an antecedent of epilepsy. It is an interesting fact that, in my second series, although inheritance was traceable in so much larger a proportion of the whole, the proportion of the cases with heredity taken separately in which insanity could be ascertained is almost the same as in the first series. In each insanity had occurred in the relations of one-third of the cases in which there was evidence of heredity; while epilepsy existed alone in two-thirds. In the first series inheritance was traced in 439, in the second series in 457. These two sets of cases, with inheritance 439 and 457, are nearly equal. In the 439 cases, insanity was heard of in 157; in the 457 cases, insanity was heard of in 170. The proportion in the first series was 33 per cent., in the second 37 per cent. I think that the fact that the great increase in the proportion of heredity, due to better information, is only attended with a slight increase in the proportion of insanity, is a striking indication of the general trustworthiness of these facts. This is the more satisfactory, because we are absolutely dependent upon the statistical method for such knowledge.

I am sorry that I can give no information regarding the features of epilepsy as it occurs with or without insane heredity. The converse facts, the character of the insanity in the cases with epileptic history in relation, can be given, I doubt not, from asylums in the course of time, by carefully collected and carefully sifted observations.

The actual association of epilepsy and insanity in the same individual, as a subject of observation, requires careful limitation, and I think that one object of this discussion should be the discernment of the limits within which information may be wisely gathered. The simple mental failure which results from epilepsy, or which is due to the defective development of the brain, qualitative or quantitative, which is the cause of epilepsy,

should, I think, be left out of consideration. Only the cases of definite mental derangement should be admitted, and it is not generally difficult to draw the line between the two.

Post-epileptic mania constitutes an entirely separate form, and it is most important to keep it distinct. It seems to represent the post-epileptic hysteroid state which is so common, and which I long ago described as resembling, in its rapid changes from manifestations of terror to those of aimless rage, as "compressed mania." But it is a transient incident in the course of the disease, definitely related to the epileptic attack. It urgently needs study—study that it can obtain only from the asylum side, because there alone the severer cases are observed. We need to know more of its causal conditions, of the age of its development, of its constancy, whether it occurs in women in definite form, and its relation to a social position. We need a large number of facts, compared, digested, and combined. I can myself recall no case of post-epileptic mania in a woman, such as that with which you are so familiar, and such as was illustrated by the case I mentioned at the annual dinner of our hospital, in which our valued colleague, Dr. Ferrier, was an involuntary subject, happily with impunity, of a homicidal demonstration. Moreover, I can recall no case of post-epileptic mania seen in private, common as is harmless automatic action.

The explanation of attacks of epileptic mania which is commonly accepted is that given by Dr. Hughlings Jackson, that they are the result of the unrestrained activity of lower centres, consequent on the temporary withdrawal, by the slight epileptic discharge in the higher centres, of the normal control. While accepting and adopting this explanation, I have always felt hesitation in regarding it as the whole truth, or indeed as more than a recognition of the superficial relation of the phenomena. I have met with cases in which it seemed impossible to recognise epileptic phenomena preceding the mental state. I think the study of these cases from the side of insanity will confirm the position taken by Dr. Jackson, that the slighter the epileptic discharge, that is, the more extensive the function undischarged, the more manifest and elaborate is the post-epileptic automatic action. But we cannot, I think, separate these cases from those in which hysterical convulsion succeeds the epileptic fit, the sequence which, in our own country, is all we can discern as the equivalent of the so-called "hystero-epilepsy" of the French. Moreover, we cannot distinguish minor attacks of epilepsy which are followed by such symptoms, and those in which a normal state is instantly resumed.

This justifies the inference that there is a predisposition on the part of the lower centres to pass into a state of morbid activity. Indeed, the same inference is justified by the fact

that the hysteroid symptoms which follow such attacks occur almost exclusively in women during the first half of life, and males during the first third of life—a proof that a powerful predisposition, a state of arranged latent energy, underlies the symptoms. But we can go further. The commencement of many epileptic fits, especially of minor fits, consists of a psychical disturbance, often associated with activity of a special sense centre. I have mentioned elsewhere the case of a patient whose warning was a sudden vision of the whole of London in ruins, of the River Thames emptied to receive the rubbish, and of she herself being the sole survivor of the inhabitants. We have here a mental state only distinguishable by its brevity from delusional insanity, and from the mental state which may succeed a fit. Although it is customary in epileptic fits for the less elaborate to precede the more elaborate, instances of the opposite order are not uncommon. If the epileptic discharge can thus begin by an elaborate mental process, we should be prepared for any evidence that it may consist solely in such a process, and that brief insanity may sometimes be truly epileptic and not merely post-epileptic.

Next to inheritance, the aspect of the relation of insanity and epilepsy which seems to me to be of most definite importance for consideration is the occurrence of insanity in the course of epilepsy. Some epileptic patients pass into a state of definite insanity, usually transient, generally, I think, taking the form of subacute mania, although occasionally presenting a form of dementia with or without delusions. I use these words with hesitation, but that very hesitation is my justification, because it illustrates the need for information that can only come from asylums. It is especially in these cases that the mental derangement at once withdraws the patient from our observation. I cannot help suspecting that the cases of this character are not adequately studied in asylums.

During my twenty-five years' work at the Queen Square Hospital a considerable number of my out-patients have had such attacks, but never once have I received a letter of inquiry from the asylums in which they were placed, and if I have heard of the attack it has only been when attendance was resumed long afterwards. I wish much that there were more co-operation between those of us who are fortunate or unfortunate enough to be outside asylums and those within them. But the hand must be stretched out from the inside, because for the most part we never know when our hospital patients pass into seclusion, and the opportuity for minute personal observation, such as we can never have, is possible only to asylum workers. We miss them for a few months, and then learn to our surprise that there has been an acute attack of insanity. I am quite sure that there is

not a single physician, at least at the Queen Square Hospital, who would not be most glad to give to the medical officer of an asylum to which a patient had passed all particulars of the case, and thankful to receive in return some information regarding the attack. These cases seem to me those to which attention should specially be turned, and we need to know the character of attacks, the character of heredity, the relation to age, and especially the relation to previous post-epileptic disturbance.

Another feature needs discernment. It is the precise features of the epileptic attacks in those who undergo these attacks of insanity. It is of extreme importance, because if a definite relation can be ascertained the danger can be to some extent foreseen. I can speak with no confidence on the subject for the reasons just mentioned. But I have a conviction that these attacks of insanity occur especially in those patients whose epileptic fits, true and characteristic, are preceded by psychical or psycho-sensory auræ. I have described instances of this elsewhere, and need not detain you with them. The instances which have come under my knowledge make me suspect that a considerable number of cases of which I have seen with such auræ have, since I took the notes, come under the care of my alienistic brethren. Here again it could only be through their help that this could be ascertained.—*British Medical Journal*, *September* 28, 1895, *p.* 774.

23.—MENTAL CHANGES IN GRAVES'S DISEASES.

By Arthur Maude, L.R.C.P.Lond., M.R.C.S.

[After referring to the occurrence of definite insanity in Graves's disease, the author passes to what he considers the more distinctive though milder form of psychosis.]

My twenty cases are all women, about equally divided in age between early womanhood and the sexual decline, all private patients, and a large proportion in a higher rank of society than the ordinary hospital patient. As I have said, none (or perhaps only one) could be claimed as insane, but only two present at all normal states of mind. In all but three the intellectual powers have suffered; but two of them are ladies of remarkable intelligence and a high degree of education. Both have been affected over twenty years, though in one the disease is quite quiescent. The other presents at times rather severe symptoms, but is, nevertheless, one of the most cultivated women I know; she is able to work as the administrative head of an important educational establishment, and (besides being an advanced student of philosophical subjects) has persevered at forty-eight years old in the study of Greek and Welsh.

M. Ball made the remark in 1893 that "a certain degree of intellectual and moral exaltation often exists." It is not quite clear from his description what he means by this expression, but I think, if we accepted the words in their literal English translation, as I have given them, that there is a good deal of truth in the remark.

The mental condition of these people is very difficult to describe, but is in its particularities very highly defined.

(1) They present an extreme motor restlessness, resembling that which sometimes accompanies sub-acute mania and neurasthenia; many of these patients are continually moving their hands and faces, acquire tricks of movement, habit spasms of ordinary type, such as pulling the corners of their mouths, the buttons of their dress, and so on. True chorea is frequently associated with exophthalmic goitre, but has never been present in any of my patients, and has no connection with the sort of movement habit I describe; neither is this restlessness connected with the habitual tremor of the disease.

(2) Another point is the ease with which these persons are startled. A very slight interruption or noise will disturb them for hours; this is generally due to the instability of their cardiac action.

(3) Sensorial illusions are occasionally present without other signs of insanity. Galezowski has described some cases of hallucinations of sight, and Grainger Stewart some of hearing. I have had under observation for many years an elderly woman who has frequent illusions of hearing, thinks she hears people talking round her or calling out; but I attach no importance to this case, for it is altogether an aberrant one. Moreover, she has some chronic Eustachian catarrh, with great tinnitus and vertigo, and if I were pinned down to an expression of opinion, I should say had mild dementia. She is a very remarkable example of exophthalmic goître having developed once a train of paralytic symptoms of the basic cerebral nerves quite unique in the history of this disorder, and at another time, under the stress of alarm, a condition resembling ambulatory epilepsy.

Vertigo, even of an extreme degree, is a common symptom, and this has been found associated with recurrent mania in at least one instance. I am unable to satisfy myself that this vertigo, in its milder forms, is not due to middle ear catarrh, as I have found this condition a common one in Graves's disease.

Now we pass to what I consider the true salient mental changes. These people become irritable, short-tempered, discontented, prone to take offences at, and quarrel, with anything and everybody. In this they merely present the usual attributes of neurasthenics. In addition the patients become untruthful, suspicious, and intolerant of contradiction or advice.

The memory becomes much impaired, especially memory of current details. But the most distinctive mental change to my mind is that first described by Sir James Russell Reynolds, who gave it the apt name of chorea of ideas. The patient finds it impossible to think of anything consecutively ; if she makes an effort to write or talk about anything, other ideas crowd into her mind and displace the original one ; names and notions often in no way connected with the proper thought crop up instead of the one she wants. A patient of mine found herself unable to cut out pieces of material for needlework, as she used to start cutting out one garment and find she had ended by trying to cut out another sort, a chemise for a skirt, and so on.

Another mental change I have seen constantly is a morbid sense of duty, an over-sensitive valuation of public opinion, or the opinion of other individuals.

I have also endeavoured in all cases to eliminate the factor of "hysteria." The definition of this term is so vague that I have pinned my faith rather to such physical signs as localised anæsthetic patches, and diminished fields of visions rather than to hysterical crises or so-called hysterical psychosis, and I can only say that my own patients have none of them presented satisfactory signs of hysteria at all. The only physical sign, which is frequently associated with hysteria, and which I have also found frequently accompanying Graves's disease, is astasia —abasia in its various forms.

I am quite aware, however, that any or even all the conditions I have described may occur in ordinary neurasthenics or hysterics, but on viewing these central nervous changes as a whole, and in fairly large numbers, I have been struck by the similarity of the assembled psychic changes as compared with those of neurasthenia and hysteria. In fact, some of my patients who have presented in its most typical form the cerebral action of Graves's disease have been furthest removed from neurasthenia, and shown none of the physical or mental attributes of hysteria.

This condition which I have endeavoured so imperfectly to describe stands, I think, in remarkable contrast to the apathetic mental state of myxœdema. And I have discovered another curious little point of dissimilarity in the absence of any olfactory illusions in Graves's disease, which (you all know) are common enough in myxœdema. So marked is this contrast, that we must be led unavoidably to the inference (though we cannot yet call it a conclusion) that we have on one side a deficiency, and on the other an overplus of some material which acts as a stimulus or a toxic agent to nerve structures, and among them the nerve structures which especially concern psychologists.—[Paper read before the British Medical Association, 1895, *Medical Press and Circular*, *September* 4, 1895, *p.* 228.]

24.—RELATION OF INFECTIVE PROCESS OF THE NERVOUS SYSTEM.

By Dr. Putnam.

[The following is a summary appended to an abstract in *Brain* of Dr. Putnam's paper, which appeared in the original in *the American Journal of the Medical Sciences*, 1895.]

It is important to separate (*a*) the symptoms and lesions which we can assert to be directly due to the specific toxines of the various infectious diseases, from (*b*) the effects of anæmia, œdema, intoxication, from disordered metabolism, on the one hand, and on the other hand from (*c*) the affections which spring into existence because the nervous system was prone to them, either from pecularities of structure, anatomical surroundings, circulation, and the like ; or because other causes had been at work, to which the infective poison only contributed new effectiveness for evil.

In the first class (*a*) we can fairly place the symptom-groups of tetanus and rabies ; and with reasonable probability the chill, pains, paræsthesias, acute delirium, disorders of micturition, and other symptoms which characterise the outbreak of many acute febrile disorders, though it must be admitted that we know little or nothing positive about their pathogenesis.

The focal hemorrhagic encephalitis and myelitis occasionally observed after influenza and other infectious processes is probably due to the action of the specific poison on the tissues and the vessels. Acute poliomyelitis and acute hemorrhagic neuritis may be of the same origin, though these opinions need further substantiation.

As regards tetanus and rabies, it is not probable that the anatomical lesions which have been found after death (Golgi and others) are actually the anatomical substratum of the characteristic symptoms. They may have been simply of correlative origin.

Post-infection meningitis is generally of purulent character, and implies the presence of micro-organisms ; but the non-purulent form bears a relation to infectious disease which is in need of further study.

The paralyses of diphtheria are probably attributable to the direct action of the poison, but, as in case of tetanus and rabies, it is by no means certain that the lesions sometimes found (though often missed) are the true cause of the symptoms. It is more probable that the first and characteristic effect of the poison is to excite a chemical or molecular change, and that this alone is strictly characteristic. Sometimes the paralysis passes away too rapidly to be attributed to neuritis. The lesions,

when present, may be many and various, and the neuritis, which is the commonest form, is of varying types. (Meyer, *Virchow's Archiv.*, 1881, vol. lxxxv. p. 181.)

The lesions met with in meningitis, and in a certain sense those characteristic of tuberculosis and syphilis, are directly due to bacterial action.

In the following cases the influence of cause *a* is more or less combined with those of causes *b* and *c*.

The question as to the origin of the post-infectious multiple neuritis is one of great interest. The most obvious position to take is in favour of its direct dependence on the infective poison ; but, in view of the general fact of the intolerance of the peripheral nerves to poisons of all sorts, it is fair to suspect that the post-infectious neuritis may sometimes be due to toxic substances developed from impaired metabolism and sometimes to anæmia and œdema (Class *b*).

It appears to be occasionally possible to induce neuritis by experimental inoculation with diphtheritic cultures, and the form and sequence under which the diphtheritic paralyses clinically occur suggest the action of a specific poison. If, however, the forms under which neuritis typically occurs are considered, it becomes obvious that natural proclivities of the nervous system are at least contributive causes.

The variety of conditions under which the spinal scleroses—both disseminated and system scleroses—occur, suggests predisposing tendencies of one or another kind, common to all and acting in addition to the various special causes. The recent observations of Obersteiner and Redlich, that the narrowing of the posterior nerve-roots at their point of penetration through the pia mater suggests a mode by which slight pressure (as from syphilitic meningitis) could set up the ascending degeneration characteristic of tabes, do not afford a complete explanation of that disease. This theory leaves unnoticed the close analogy between the syphilitic tabes of the lateral columns and that of the posterior columns. The occurrence of the peripheral neuritis met with in connection with syphilitic tabes, but rarely seen at other stages of syphilis, points to the presence of some poison as yet undiscovered, and strengthens the probability that the posterior column degeneration of anæmia and ergot-poisoning, as well as that of syphilis, is mainly of toxic origin.

The complex nature of the infective poisons is shown by the varying relation between the toxic symptoms of the first stage (fever, delirium, pain, &c.) and those of the later stages.

In influenza the fever may be of trifling amount and duration, and yet the post-infectious diseases severe and lasting ; in cerebro-spinal meningitis the fever is often slight. Again, it has been found possible, experimentally, to neutralise to a certain

extent the fever-producing element in bacterial poisons by special anti-toxines. (V. Centanni and Bruschettini, *Deutsch. med. Wochenschr.*, 1894, No. 12, p. 270.)

Finally, it is probable that a routine examination, by the best modern methods, of the central and peripheral nervous system, after infection, would show changes to be present far oftener than is now supposed. The studies of Golgi in rabies lend support to this view.

As an additional contributive cause of lesions, fatigue may be mentioned, since the experiments of Hodge show that this is capable of exciting manifest changes in the nerve cells. It is a question for further investigation whether or not fatigue acts more forcibly on nerve centres poisoned by the products of infectious processes.—*Brain*, 1895, *Summer and Autumn Number*, *p.* 451.

25.—THE TREATMENT OF EXOPHTHALMIC GOITRE BY THE ADMINISTRATION OF THYMUS GLAND.

[The following is taken from a leader in the *Boston Medical and Surgical Journal*, *July* 11, 1895, *p.* 48 :]

An account of three cases of exophthalmic goitre treated by the administration of fresh thymus gland is given by Cunningham in the *Medical Record* of June 15, 1895.

In the first of these cases the treatment by thyroid tablets was first tried, but was unsuccessful, the patient growing rather worse under the treatment, which was carried out, however, for only two days. The raw thymus gland from lambs fed on milk was then tried, but found to cause nausea, so that it had to be slightly broiled. Five months of this treatment resulted in an apparently complete recovery.

In the second case in which the symptoms, as in the first, were well marked, the treatment with thymus irregularly carried out for two weeks resulted in marked improvement.

In the third case thymus-gland tabloids (five grains) at the rate of twelve to fifteen a day were administered, with the result that within one week a marked diminution in the size of the thyroid gland occurred, and in two-and-a-half weeks the pulse had fallen from 124 to 96, and the patient's general condition was much improved.

These cases, as the writer remarks, taken in connection with the case reported by Owen in the *British Medical Journal* of February 16, 1895, of exophthalmic goitre successfully treated by the accidental administration of the thymus gland, tend to

show that in certain cases, at least, of exophthalmic goitre a diet of thymus may be followed by surprising and gratifying results.

Whether it is the nuclein of the thymus gland, or the derivative base, adenine, shown by Schlinder to exist in the thymus of the calf, which acts in exophthalmic goitre in a manner analogous to that of the nucleo-albumin of the thyroid body when the latter is given in myxœdema, cannot be positively stated.

The results of the experimental study of the effects of the removal of the thymus from young animals have so far been unsatisfactory.

Macalister, in 1893, called attention to the remarkable metabolic effects which occurred during a diet of thymus in a case of pseudo-hypertrophic muscular paralysis, and his results tend to substantiate the idea of some of the older writers, that the thymus stands in relationship with the state of development of the muscular system. Certain symptoms of exophthalmic goitre, which are manifested by the muscular system, have led to the belief that in this disease a specific muscle-poison is secreted by the pathologically-altered thyroid, which alters the normal muscle tonus into a series of small contractions. These facts have led Owen to suggest that the thymus adds to this blood some substance which opposes the action of this muscle-poison.

That a certain functional relationship, at present unknown, exists between the ductless glands is obvious, from both experimental and clinical observation. Hypertrophy of the thyroid is known to follow extirpation of the spleen. Cadéac affirms that enlargement of the thyroid follows thyroidectomy in lambs, and Rogowitsch has found hypertrophy of the pituitary body after thyroidectomy in rabbits. "Clinically, Boyce and Beadles emphasise the frequency of the same occurrence in myxœdema, sporadic cretinism and cachexia thyreopriva in man. In acromegaly, hypertrophy not only of the hypophysis, and either hypertrophy or atrophy of the thyroid occur, but an hypertrophy or a "revival" (Marie) of the thymus has often been reported. In myxœdema, and especially in exophthalmic goitre, a similar hypertrophy or revival of the thymus is frequently found, as is evident from the cases of the latter disease reported by Johnston, Hale White, Mosler, Spencer, Marie, Moebius, Lasvenes, Reymond, and several other observers."

It is conceded by many eminent observers that the increased secretion of the thyroid is not the sole cause of all the symptoms of exophthalmic goitre, and the observations above quoted by the writer, point to the possibility, at least, of changes in the action or secretion of certain of the other ductless glands being a causal factor.

The fact that in certain of the cases of exophthalmic goitre, treated by extirpation of the thyroid, a temporary moderation in the symptoms occurs, followed later by an increase of some of the former symptoms, tends strongly to confirm this opinion.

The case reported by Bécléve, in which the symptoms of exophthalmic goitre ensued in a myxœdematous patient who had taken ninety-two grammes of thyroid extract in eleven hours, is also suggestive in this connection.

On the other hand, the treatment of exophthalmic goitre by thyroid extract has in some cases resulted in improvement, the improvement, according to Kocher, being due to the thyreoidin producing a retrograde metamorphosis of the hypertrophied thyroid. Cunningham would explain this fact by the theory that the "thyreoidin" causes some of the symptoms to disappear in some cases, while others are only moderated, and in certain cases unaffected or even increased. He is led, by a comparative study of the above evidence and of the symptoms of exophthalmic goitre, myxœdema, acromegaly, and their combinations, to the conclusion that alteration in the function of one or more of the ductless glands, may play a more or less prominent part in some of their symptoms. Whether the alteration of these glands is itself secondary to a primary derangement of the nervous system, or to a toxic-blood state of thyroid or gastro-intestinal origin, can only be determined by careful clinical and experimental study of these glands and their functions.

26.—ON SYPHILITIC HEADACHE.

Certainly no syphilographer living to-day, and probably none who has ever studied this subject, is better fitted than Fournier, not only from his profound study of the subject, but from his wonderful personal experience of cases, to speak authoritatively upon the subject of cephalic syphilis. In a series of papers contributed to the *Gazette Médicale de Paris* for June 1, 8, 15, and 22, he traverses this subject with that thoroughness and brilliancy which makes his every utterance upon his chosen topic of interest to the whole scientific world. He points out that pain in the head is one of the most frequent manifestations of secondary syphilis, while the prodromal headache of tertiary encephalopathies is universally recognised and described. It is, however, unfortunate that the term specific cephalalgia conveys to many minds the impression of a single pathological process, when, as a matter of clinical fact, the lesions may be, and often are, widely diverse in their nature. The single symptom common to all is pain in the head. Thus, this pain may be due to specific neuralgia affecting one or more of the cranial nerves, constituting

what is called neuralgic headache. Or it may be due to a lesion in the cranial bone, such as periostosis, gummatous osteoma, causing bone pain. Or it may develop as neuralgia without bone lesion, in which case it is often impossible to locate it. In many respects it differs not at all from headaches due to causes other than syphilis. Finally, there is a headache which, though dependent on syphilis, is not syphilitic in nature; in other words, it is a parasyphilitic neurosis.

Syphilitic neuralgias are not headaches in the true sense of the word; the pain is located in the trunk or distribution of a given nerve, and is aggravated by pressure upon certain portions of this nerve, particularly points of emergence. The supraorbital is most frequently affected, extreme tenderness being elicited on pressure over the supraorbital notch. This pain may affect the upper branches of the fifth pair, or the auricular and mastoid filaments of the cervical plexus, or the occipital nerve, but it is most frequently observed attacking the fifth pair, and has for its type the supraorbital neuralgia. This affection is observed during the early stage of the secondary period—that is, in the first six or eight months of the disease. It is impossible to state whether or not it is dependent upon organic lesions. When it occurs during the tertiary period it is nearly always due to a distinct lesion; often the pressure of a gumma or bony outgrowth. These specific neuralgias are characterised by almost identically the same symptoms dependent on neuritis from other causes. They have, however, a tendency to become worse at night, and yield promptly to specific treatment. Indeed, the therapeutic test is the only means of making a positive diagnosis.

Pain due to bone lesions may occur in the early stages, during the height of the disease, or at a late tertiary period. It is most frequent in the tertiary period, and is readily recognised, since the lesions are gross, producing considerable deformity. Secondary lesions are slight, circumscribed, and readily overlooked, especially when they develop in the hairy scalp. They occur during this early period as periostitis, periostosis, or as ostealgias characterised by circumscribed areas of hyperæsthesia without appreciable lesion. These lesions are very common, especially in women, and are usually overlooked. The periostitis produce slight circumscribed swelling of the bone, particularly in the parietal, temporal, and frontal regions. The involved areas are small—about the size of a 10 cent piece, sometimes as large as a 50 cent piece—very slightly raised, sometimes obscurely fluctuating. They are painful and extremely sensitive. This excessive sensibility is a characteristic sign. Periostoses offer the same symptoms, and are even more painful. They are, however, more dense and resistant, and last longer. There is true bony proliferation on the surface of the bone.

The ostealgias are characterised solely by pain. There is no swelling, and no appreciable alteration of any kind. The pathological alteration occasioning this symptom is absolutely unknown. The pain of these bone affections is sometimes agonising, and often radiates over a very large surface. The diagnosis is founded upon careful and thorough palpation of the entire cranium.

Headaches due to syphilitic affections of the brain or its envelopes are more diffuse and more deeply placed than those dependent upon bony lesions or upon neuralgia. It is impossible from the symptoms to decide whether they are dependent upon lesions of the meninges, the cerebrum, the blood-vessels, or whether all these structures are involved.

Clinically, three varieties are recognised : secondary encephalalgia, headache symptomatic of cephalic lesions, parasyphilitic headache due to hysteria or neurasthenia. By all odds the most important variety is the migraine preceding grosser symptoms of cerebral syphilis. In certainly two-thirds of all the cases of hemiplegia, amnesia, aphasia, epilepsy, coma, pseudo-paralysis, &c., dependent upon syphilis, there is this prodromal headache. A large percentage of these cases could have been saved from these grave accidents by vigorous treatment instituted during the period of padromal headache. This headache differs from other cephalalgias, as, for instance, those due to neuralgia or epicranial rheumatism, from the fact that it is felt to be deep within the head. The character of the pain varies ; there may be simply a *sense of weight* and mental hebetude, or there may be a constrictive pain, as though the head were screwed in a vice ; or, finally, the sensation may resemble that produced by blows of a hammer, the suffering being very intense and the pain being deeply placed.

These three types may be associated, or may succeed each other. The pain may be sharply circumscribed to an area not larger than a half-dollar. In this case it frequently indicates the formation of a gumma. Sometimes it is diffuse, occupying a general region, as the frontal, or temporal, or parietal, or occipital, or spread over two or more of these regions. Exceptionally it seems to involve the whole head. The fronto-parietal region is the one most frequently subject to this pain. This pain has three characteristics which should at least strongly suggest its nature. There is an habitual intensity, sometimes extraordinary severity, of pain. It is persistent, tenacious, long-lasting ; there are nocturnal exacerbations. Even in mild cases the pain is less bearable than the ordinary headache ; it harasses the sufferers, making them despondent, morose, excitable, sleepless, and interfering with general nutrition ; or it may be so severe as to completely

prostrate them. Exceptionally the pain amounts to a veritable anguish, comparable in intensity to that of hepatic or nephritic colic.

Nocturnal exacerbations of pain, though the rule, are by no means invariable. In the secondary period this characteristic is most pronounced; in the tertiary period it may be wanting entirely; indeed, it may happen that there are nocturnal remissions. As a rule, syphilitic cephalalgia precedes the grave developments of brain syphilis by an interval of three to six weeks; it is, however, not uncommon for this pain to last three to six months; exceptionally the pain may exhibit remissions and exacerbations for two or three years. Under the influence of intermittent, mild, specific treatment, the headache may be temporarily cured, to recur time after time, till symptoms such as hemiplegia or epilepsy show that irreparable damage has been done.

The prodromal headache is a sign of inestimable value, enabling a treatment to be instituted in time to prevent grave lesions. This treatment should be instituted early, should be vigorous, should be long continued. It is not sufficient to cure the headache; the underlying constitutional taint must be eradicated in so far as this is possible.

This treatment should combine mercury and potassium iodide, each given in the most active form and manner possible. Every ten days an injection of $1\frac{1}{2}$ grains of calomel should be given, repeated as often as is required. Internally, the iodide of potassium is to be administered: to a woman, 1 to $1\frac{1}{2}$ drachms a day; to a man, nearly twice this dose. This treatment should be long continued, with appropriate short intervals of rest, until there is good reason to believe that there is no likelihood of further recurrence.

Among the parasyphilitic affections causing headache may be mentioned the neuralgic migraine and the crises of pain often observed in tabes. The most important affection, and by far the most common, is neurasthenia. This is an ordinary sequence of syphilis, and among its multitudinous symptoms none is more troublesome or more frequent than headache.

This parasyphilitic neurasthenic headache is characterised by very moderate intensity; it is not really a pain, but rather a sensation of weight or constriction, of dulled or imperfect cerebral action. As to duration, it usually lasts several years. It is present in the morning on rising, is sometimes better after meals, but shortly returns with its original intensity, or even with a slight excess of this; it is better at night, so that sleep is not disturbed. It is not benefitted by specific treatment; it is usually located in the occipital region; and, finally, it is usually associated with other signs of neurasthenia. These are

characteristics which sufficiently distinguish the cephalalgia from pain prodromal to the recognised cephalopathies; indeed, a headache which has lasted for several years almost certainly does not belong to the latter class, since apoplexy or some one of the serious symptoms denoting irreparable lesion is quite certain to develop long before the expiration of this period. Yet it may well happen that a differential diagnosis cannot be made. In this case the mixed specific treatment should be given *one* thorough trial. Should it fail, there should be no further effort in the direction of attempting cure by this treatment.

Where the diagnosis of parasyphilitic neurasthenia is firmly established, minute attention to general hygiene, a thorough hydrotherapy, especially with douches of brief duration, or warm-bath treatment, massage, and change of surroundings represent the best methods of ultimately accomplishing a cure. The only drug which is of the least service, aside from tonics and nutritives, is bromide of potassium; this sometimes relieves the headache.—*The Therapeutic Gazette*, *August* 15, 1895, *p.* 525.

27.—VERTIGO.

By Professor Mendel of Berlin.

One of the most valuable contributions to our knowledge of the puzzling symptom known as vertigo has recently come from the pen of Mendel of Berlin. He says that various theories have been formulated by medical men on the subject of vertigo, and it would be well to come to an understanding as to what this condition really is. In the first place, vertigo is almost invariably ushered in by ocular phenomena. In some cases the patient has the sensation of seeing the surrounding objects whirling around himself, and experiences a tendency to fall either in the same direction as the objects seemingly turn, or toward the other side; at other times, it seems to the patient as if the objects about him were approaching or receding, rising, or falling. This instability of the external world is immediately followed by a sensation of oppression and sinking, resulting in static disturbances, and the patient begins to stagger and collapse. Then follow various secondary phenomena, such as pain in the back of the head, noises in the ears, ephemeral deafness, vomiting, slowness of the pulse diaphoresis, &c. There are four degrees of vertigo; in the first and lightest form, only ocular symptoms occur, accompanied by angor which rapidly disappears; in the second, there is a sensation of disturbed equilibrium; in the third, the equilibrium is really upset and the patient falls; in the fourth, these symptoms are accompanied by the above-mentioned secondary phenomena.

The pathognomonic clinical sign of vertigo is disturbance of the equilibrium. Maintenance of the equilibrium is intimately connected with the sense of touch, kinæsthetic sensations, and sight. Whether hearing has anything to do with it, is still a subject of controversy.

All static disturbances are not symptomatic of vertigo. Abolition of the sensorium results in a loss of the equilibrium, which has nothing in common with vertigo ; the fear experienced on being placed at a considerable height is not vertigo properly so called, but rather a psychical process which only secondarily affects the organs of equilibrium ; the same is true of agoraphobia.

True, vertigo is always associated with a disturbance in the musculature of the eyes. Vertigo is the first symptom complained of by patients who suffer from paralysis of the ocular muscles, whether this paralysis be peripheral or nuclear. On several occasions I have even seen vertigo precede the paralysis. On investigation of the causes of ocular vertigo, with special reference to the supply of blood to the muscles of the eye, I have found that the nuclei which preside over the movements of the ocular muscles receive their blood from the posterior cerebral artery through fine terminal branches, not anastomosing with each other. The result of this arrangement is that the slightest disturbance in the central circulation immediately detracts from the supply of blood to the nuclei of the ocular muscles.

Every pathological process which develops a focus of disease in the brain will necessarily influence the cerebral circulation and, in consequence thereof, be associated with vertigo, especially when this focus occupies a posterior cerebral fossa.

Lastly, vertigo is the earliest and most prominent sign of a morbid change in the blood vessels of the brain, although arteriosclerosis is not accompanied by vertigo unless its evolution is very rapid, a process of adaptation, taking place otherwise.

The treatment of vertigo must be adapted to its cause. In cerebral arteriosclerosis iodide of potassium in small doses, continued for months, and, in addition, camphor and quinine, to re-enforce the action of the heart, seems to give the best results. With the same object in view, alcoholic beverages in moderate quantities should be prescribed to patients who suffer from this affection. In recapitulation he says, vertigo consists in a group of symptoms, determined by a disturbance in the sense of equilibrium, due to defective function of the ocular muscles. This defect itself may be of peripheral or central origin. — [*Abstract by Dr. Joseph Collins, in Journal of Nervous and Mental Disease, September*, 1895, *p.* 592.]

28.—PUNCTURE OF THE SPINAL MENINGES.

(Quincke's Puncture. Lumbar Puncture.)

By Prof. FÜRBRINGER, of Berlin and Dr. STADELMANN.

[The following abstracts are taken from the Epitome of the *British Medical Journal*, 1895 :]

FÜRBRINGER (*Berl. klin. Woch.*, April 1, 1895) has punctured the membranes more than 100 times in 86 cases. The procedure is quite easy. The author recommends that the patient should sit up, at the same time bending well forwards, and that the needle be introduced on a level with the under surface or exact extremity of the spinous process. An anæsthetic is unnecessary. Sometimes the aspiration of the fluid was found to cause pain in the neck, back, or head, so that the author uses the Pravaz syringe almost exclusively. The amount of fluid withdrawn varied from a few drops to 110 c.cm. The amount evacuated does not always correspond to the amount present or to the pressure. Very occasionally a bloody or blood-stained fluid was withdrawn. Once, owing to pain in the legs, it was thought that a nerve root had been pierced. In four-fifths of 37 cases of tuberculous meningitis the diagnosis was established with certainty by the presence of the tubercle bacillus. Improvement is so rare that any curative action can hardly be thought of. In the author's opinion the symptom-complex of this disease is not in any great measure the direct result of increased pressure. In 2 cases with meningeal symptoms in which no tubercle bacilli were found the after-examination showed a serous meningitis. In one case of chronic hydrocephalus the fits lessened after the puncture ; the necropsy eventually showed the hydrocephalus to be due to a tuberculous nodule in the cerebellum. In one case pus was withdrawn. In 3 cases of cerebral tumour there was slight improvement in the headache in one case. There was but slight change in a second case, which subsequently recovered under antisyphilitic treatment. In a third case sudden death occurred the day after the puncture. In a fourth case much improved by trephining, lumbar puncture was practised owing to a relapse. The symptoms improved slightly, but death occurred twenty-four hours later. It cannot be said whether the puncture had anything to do with the sudden deaths. In two uræmic cases 90 and 50 c.cm. of fluid were withdrawn without result. In one case of cerebral hemorrhage with rupture into the ventricles blood was withdrawn, as well as in a case of hemorrhage into the cerebellum rupturing into the fourth ventricle. For diagnostic purposes spinal puncture is most valuable in tuberculous meningitis and when pus is withdrawn. In hemorrhages into the ventricles or

subarachnoid space it may also be of service. Therapeutic results (at all permanent in character) are either absent or only rarely to be seen. Whether there is any danger in spinal puncture is neither proved nor disproved.—Epitome of the *British Medical Journal*, *May* 11, 1895, par. 354.

Stadelmann (*Berl. klin. Woch.*, July 8, 1895) observes that although this prodecure is generally easy, it may not be so in the case of restless and semi-unconscious patients. In tuberculous meningitis the fluid drawn off should be clear, with tubercle bacilli in it; in suppurative meningitis, turbid or purulent, with pyogenic micro-organisms in it; and in cerebral abscess, clear and without micro-organisms. Tubercle bacilli have not been found at times by some observers, although Lichtheim has never missed them. Clear fluid without micro-organisms may also exist in tumor cerebri, simple meningitis (Quincke), and even suppurative meningitis. The difficulty of distinguishing at times between cerebral abscess and meningitis is well known. If pus is drawn off by lumbar puncture, suppurative meningitis must be present. Sometimes the fluid has been turbid only, but this is thought by Lichtheim to be exceptional. The author then records a case of suppurative meningitis, secondary to fracture of the base, where the fluid was turbid and blood stained. Too much importance must not be attached to blood-stained fluid. A case of fatal meningitis, secondary to ear disease, is also recorded. Here clear fluid was drawn off during life, and no tubercle bacilli or other micro-organisms could be found in it by cultivation or otherwise. The author thinks it doubtful whether a communication exists (at least in the pathological condition) between the subarachnoid space and the cavities of the ventricles. He suggests that the drawing off the fluid may lead to an extension of the infection to the cord. He would account for the hitherto unexplained pain after aspiration, as well as the limited amount of fluid at times obtained by the closure of the communication between the ventricles and the subarachnoid space. The author emphasises the importance of the positive and the unreliability of the negative evidence obtained by lumbar puncture.—Epitome of the *British Medical Journal*, *August* 17, 1895, *par.* 127.

[The diagnostic value of lumbar puncture appears to be very generally admitted. Recently Quincke himself has published (*Berl. klin. Woch.*, 1895) another paper on the subject, in which he maintains, that in some cases, it may be of therapeutic use. Freyhan has been able to prove beyond doubt that tuberculous meningitis can be recovered from, as he was able to demonstrate the presence of tubercle bacilli in the fluid obtained by spinal puncture in a case which ultimately recovered.—See *Synopsis* of this Volume of the *Retrospect.*]

DISEASES OF THE ORGANS OF CIRCULATION.

29.—THE TREATMENT OF RHEUMATIC ENDOCARDITIS.

By Richard Caton, M.D., F.R.C.P., Hon. Physician to the Liverpool Royal Infirmary.

[The following is an excerpt from Dr. Caton's very interesting paper, which is well worthy of being read in its entirety as it is based on a considerable and well digested experience. The table of 52 cases of endocarditis is omitted, but the summary is given.]

Before detailing the results, I ought to say something about (1) the general treatment of these cases of acute rheumatism; (2) about the efforts made to prevent cardiac disease; and (3) it will be well also to state the evidence I relied upon as indicating the presence of genuine endocarditis in the cases in the list which I subjoin.

(1) The patients are kept in bed: I prohibit as far as possible all exertion or exposure. No getting out of bed is allowed; and to prevent chills, a long flannel nightshirt is worn (a stock of these garments is kept on purpose for rheumatic cases in my wards). Thus the profuse perspiration incident to the disease is not likely to be checked. A light milk-diet is given. Gentle cholagogues are administered, and salicylates are given in such measure as the disease seems to demand. If the pain fails to yield in any joint, we immediately apply small blisters, followed by poultices,—a method which rarely fails to give great relief, as I can testify from the experience of hundreds of patients. Hyperpyrexia or any special symptom receives appropriate treatment. We keep the patient in bed and on a light diet for a considerable time after the disappearance of pain.

(2) There seems to be a strong ground for believing that perfect quiet and rest and avoidance of chills during acute rheumatism lessens the liability to cardiac complication. Cold to the surface undoubtedly favours the tendency to inflammation in the synovial membranes: the endocardium is a membrane similar in kind, and is likely to be affected similarly. My own experience certainly is in favour of this view. There is much divergence of opinion as to the proportion of cases in which the heart is affected. Codet, the French writer, puts it down at 31 per cent., Picot at 73 per cent., Church (St. Bartholomew's list) gives about 60 per cent., Mansir and Shadwell's list from Guy's Hospital Reports gives over 50 per cent. The lowest estimates place it at 25 per cent. During the period the subjoined list of

cases covers, I have had rather over 300 hundred cases of febrile rheumatism, but in many of them the fever was slight and temporary.

I have collected in the annexed 52 cases of cardiac rheumatism but for statistical purposes ought to add about 8 or 10 other cases, the records of which are so imperfect that they are of no statistical value, though giving incidental evidences of cardiac complication. My proportion is under 20 per cent. Probably the great discrepancy in percentages is due to different conceptions of the meaning of the term *acute rheumatism*. If it be restricted to the highly febrile type, the high estimates—60, 70, 80 per cent.—I have quoted will probably be correct. Though my own experience is that endocarditis is not confined to pyrexial cases, it is certainly more frequent in them. My proportion of cases of rheumatism with cardiac complication may be considered to have been comparatively small, and personally I attribute this to the precautions taken.

Turning now to the subject of the treatment of incipient endocardial inflammation. As soon as the bruit is perceptible, or even prior to that,—during the preliminary stage of "woolliness,"—we at once give potassium or sodium iodide in 10 grain doses thrice daily, in addition to the salicylates, and apply over the apex a blister about the size of a florin ; as soon as the irritation of this blister is subsiding we apply a second close to it, then a third, and so on, keeping the patient, meantime, as quiet as possible, strictly forbidding exertion, exposure, or too much nitrogenous food. I have scarcely ever known the patient complain of the blisters, which practically occasion little or no discomfort. We examine the heart daily. Frequently in a week or ten days' time I have had the satisfaction of noting a gradual subsidence of the bruit ; day by day it becomes less clear and distinct, until at length it is found to be entirely absent. Sometimes several weeks elapse before this desirable change is accomplished.

I think the prolonged rest in bed has an important share in this good result. You will note that the 39 cases which I treated on the above principle were on the average forty-one days in hospital, and confined to bed thirty-five or thirty-six days.

When the bruit has gone, I have, when possible, kept the patient under observation for a while. Sometimes this is not practicable, as in the case of seamen or servants, but I have often for many weeks noted the condition of the heart, and found it perfectly normal. In some instances I have done this for two or more years.

It may be observed that in the 13 cases in the list which were either not treated at all, or imperfectly treated, by blistering, poulticing, leeching, &c., with an average residence in hospital

of twenty-eight days, the result was that 12 left hospital with a *bruit*, which I fear they retained throughout life. One case, however, lost his *bruit* spontaneously. But of the 39 cases treated by prolonged rest, repeated blistering, and the administration of iodides, 29 left hospital with normal heart-sounds and 10 with a *bruit*.

I must confess that this series of 29 cases, in whom distinctly marked *bruits* had been heard, but who left the hospital with normal sounds, constituted a better result than I had ever ventured to hope for. It was, in fact, so good a result, that I don't expect the readers of this paper will altogether accept it. Many will believe that mistake or error has crept in somehow.

To the best of my knowledge and belief, what I have stated is accurate. The cases were not examined and recorded by myself alone, but by registrars, house-physicians, and clinical clerks.

Summary of 52 Cases.—Of 39 cases treated by repeated blistering over heart and administration of potassium iodide (average stay in hospital, 41 days) 29 left hospital without a *bruit;* 7 with a *bruit;* 3 uncertain—probably had a *bruit.* Of 13 cases not treated, or treated otherwise (average stay in hospital, 25 days) 1 left hospital without a *bruit;* 12 with a *bruit.*

In conclusion, while hoping for criticism on the method advocated, one thing I am specially anxious for, viz., that members of the profession who have the opportunity of observing cases of acute endocarditis will give this method a fair trial.—*Liverpool Medico-Chirurgical Journal, July,* 1895, *p.* 323.

30.—TREATMENT OF DISEASES OF THE HEART.

By Byrom Bramwell, M.D., F.R.C.P. Ed.

[The following is an excerpt from a paper read before the Edinburgh Medical Chirurgical Society in the discussion on cardiac therapeutics :]

Cases of Chronic and Incurable Valvular Disease.—This group includes those cases in which the lesion is chronic and the heart permanently damaged, say, by a valvular defect which is incurable and irremovable. It is unnecessary to say that the cases included in this group present the greatest differences in detail.

In the treatment of those cases in which the compensatory changes are satisfactory, and in which they are no urgent symptoms, it is essential to endeavour to follow Nature's indications as we learn them by the observation of cases of long duration, such as those to which I have previously referred. The more important points are :—

(1) To prevent cardiac strain, and to avoid everything which is likely to embarrass the damaged heart, and to aggravate or lead to fresh activity in the lesion. It is important to remember that cardiac strain may be due to two classes of causes, viz.—(*a*), external causes, such as muscular over-exertion; and (*b*), internal causes, such as a gouty condition with high arterial tension. One of the chief difficulties which we meet with in treating cases of cardiac disease in the labouring classes, is the impossibility in many cases of their avoiding muscular strain, and in the upper classes their inability to prevent the development of the gouty condition, or their unwillingness to avoid the conditions which produce gout and high blood-pressure.

One occasionally meets with cases in which cardiac valvular lesions seem to be entirely due to muscular over-exertion, and in which the removal of the cause is attended with the happiest results.

Cases such as this, which seem to show that excessive muscular exertion can produce a cardiac valvular lesion, and that the removal of the cardiac strain which muscular over-exertion causes, can result in the cure of the disease, bring home to one's mind most forcibly the importance of avoiding over-exertion and cardiac strain in those cases in which the heart is organically and permanently damaged.

In this connection I may remark that in some cases of mitral stenosis, violent palpitation and sudden and excessive action of the heart are attended with a special danger. In many cases of mitral stenosis, in which the lesion appears to be well or perfectly compensated, the left auricular appendix is filled with clot. In more than one case of this kind I have known a hemiplegia developed immediately after an attack of palpitation or violent cardiac action, which presumably caused embolic plugging of the middle cerebral artery by detachment (breaking off) of a portion of the clot.

High blood-pressure and obstruction in front are, in the well-to-do classes at all events, a more important cause of cardiac strain than muscular over-exertion; for, arising as they so often do from a gouty condition and independently of any obvious external causes, they are much more likely to escape observation, and consequently much more difficult to prevent and remove. And it must be remembered that the relief of high arterial tension is not only of importance in the treatment of cardiac disease after it is developed, but also in the prevention of cardiac degeneration and disease. The late Dr. Mahomed directed attention to the fact that a condition of long-continued high blood-pressure is apt to precede the development of cirrhosis of the kidney, and that in some cases it is possible, by appropriate (anti-gouty) treatment, to prevent the development of the arterial

and cardiac lesions which the high blood-pressure and continued cardiac strain would, if they continued, eventually produce.

(2) To keep the heart muscle in the highest possible state of health and efficiency.—In order to carry out this indication, it is important to attend to the condition of the digestive and excretory organs (intestines, liver, kidney, skin), and to carefully and judiciously regulate the whole mode of life of the patient. In cases of this kind, attention to the minute details of every-day life (diet, exercise, clothing, sleep, alcohol, tobacco, tea, &c.) is all-essential.

(3) To carefully protect the patient against everything which is likely to exert an injurious influence upon the heart—such, for example, as bronchitis and rheumatism.

In cases of chronic valvular disease in which the lesions is slight or stationary, in which the heart muscle is healthy and the tissues and organs sound,—in other words, in cases of valvular lesions during the stage of good compensation, the measures which have just been recommended, with, perhaps, the occasional administration of such remedies as arsenic, strychnine, and iron, are all that are required.

I am of opinion that so long as the compensation is well maintained, the administration of the more powerful cardiac tonics, such as digitalis or strophanthus, is not only unnecessary, but in many cases inadvisable and often harmful.

Temporary Breakdowns of Compensation. — But it must be remembered that in cases of this kind, in which the lesion is, under ordinary circumstances, perfectly, or almost perfectly compensated, acute embarrassment and failure of the heart may be produced by undue effort, excessive strain, or the development of some intercurrent complication. In chronic mitral lesions, for example, an acute attack of bronchitis, which throws an increased strain on the right heart, is frequently attended with the rapid development of grave and serious symptoms (marked shortness of breath, œdema of the feet, &c.). Under such circumstances, the bronchitis must, of course, be treated by appropriate remedies ; but, an all-important point is to aid the enfeebled right heart, by the administration of cardiac tonics and stimulants (digitalis, strophanthus, strychnine, alcohol, &c.); and if it is greatly engorged, to relieve the strain by venesection. In cases of chronic valvular disease, in which acute pulmonary lesions with failure of the heart are developed, I have found the greatest benefit from oxygen inhalations, subcutaneous injections of strychnine, and the internal administration of full doses of digitalis or strophanthus. As soon as the compensation is again restored, the digitalis or strophanthus may be altogether discontinued, or given in very much smaller doses, or alternated with such remedies as arsenic, strychnine, and general tonics.

The Treatment of Valvular Lesions after the Breakdown of Compensation.—In another group of valvular lesions the lesion is actively progressive, or so severe that the continued output of more and more compensation is necessitated. In cases of this kind, a time ultimately, and often speedily, arrives when more active and energetic treatment is required. It is now that digitalis and strophanthus are so valuable, in conjunction with other measures calculated to relieve the secondary results and complications which the failure of compensation and the embarrassment of the circulation produce. Personally, I agree with those who think that there is a difference between the mitral and aortic cases; and I am glad to think, if I understand him aright, that Prof. Fraser is at one with me on this point.

The Treatment of Cardiac Cases of all kinds after the Breakdown of Compensation.—In treating cases of cardiac disease in which symptoms and signs of enfeebled and embarrassed circulation and defective compensation are developed—I refer to all forms of organic change, and not merely to the valvular lesions—the treatment has to be guided by the opinion which is formed as to the nature of the lesion and the condition of the heart muscle. Measures which are appropriate in one case may be prejudicial in another. This statement especially applies to rest and exercise on the one hand, and to the administration of cardiac tonics and the form of cardiac tonic on the other. I cannot agree with those who think that digitalis is suitable and equally useful in all cases.

[Dr. Bramwell gives his personal experience of the value of the following, among other measures and remedies :]

Iron.—This is an invaluable remedy in those forms of cardiac disease in which there is a deficiency of hæmoglobin. The form of iron which I have found most efficacious is Robertson's Blaud's pill capsules.

Arsenic.—This is a most valuable cardiac remedy. It is especially useful, I think, in cases of myocardial degeneration (fatty and fibroid conditions of the myocardium) and in neurotic cases ; it is also most useful in many cases of angina pectoris. It is a most valuable cardiac tonic in many cases of valvular disease, in which there has been any decided breakdown of compensation,—particularly, perhaps, in cases of aortic regurgitation.

Strychnine.—This, I consider, is one of the most useful cardiac remedies which we possess, both for the purpose of producing a sustained tonic effect and more active stimulation. I find it very valuable in many cases of valvular disease, before there has been a decided breakdown of compensation, and during temporary breakdowns of compensation, in which there are bronchial or other pulmonary complications, more particularly

when given subcutaneously in frequently repeated doses, with or without inhalations of oxygen. In the same conditions I often combine it with digitalis or strophanthus.

Digitalis.—This is the cardiac tonic which I most largely use when symptoms indicative of failing compensation are developed, both with the object of producing immediate and temporary effects, tiding the patient over acute complications, and also with the object of permanently sustaining the cardiac power and preventing further breakdowns of compensation. I entirely agree with Prof. Fraser in thinking that it is most useful in mitral lesions, especially mitral regurgitation with dropsy, irregular pulse, scanty condition of the urine, &c. I agree with those who think that it should be given more cautiously and for shorter periods of time in cases of aortic regurgitation, and that in such cases it cannot be expected to produce such satisfactory results as in cases of mitral regurgitation. I need not go into further details, for Prof. Fraser's statement entirely represents my own experience on this subject. Let me, however, say that I think digitalis is not unattended with risk in fatty conditions of the cardiac muscle. I have seen at least one case of fatty degeneration of the heart, in which rupture had occurred during a course of digitalis, and in which I was inclined to think that the rupture was the result of the administration of the remedy. I rarely, if ever, give it in chlorotic cases.

Venesection is undoubtedly valuable in many cases in which the right heart is greatly over-distended and engorged, and is particularly useful, I think, in those cases in which the engorgement depends upon temporary lung complications, superadded to mitral disease.

Dry-cupping is often most useful for the relief of congestion of the lungs and other pulmonary and kidney complications.

The *soporifics* which I find chiefly useful are chloralamid, paraldehyde, and morphia. In cardiac cases sulphonal is, in my experience, much less certain in its action than chloralamid. I have almost entirely abandoned chloral hydrate in grave cardiac cases on account of the marked depression which, in my experience, it is, under such circumstances, apt to produce. Paraldehyde is, I think, especially useful in those cases in which there is associated bronchitis—in other words, in those cases in which morphia is contra-indicated. After the breakdown of compensation and in the ultimate restlessness of cardiac cases, small and frequently repeated doses of morphia are often invaluable. I have seen the administration of the remedy attended with marked benefit even in those cases in which the urine is albuminous. On the whole morphia is, in my experience, by far the most reliable sedative and soporific. As Professor Fraser has pointed out, it is an invaluable remedy

in some cases of angina pectoris in which nitrite of amyl fails to give relief or is contra-indicated—cases, for example, in which the blood-pressure is low and in which there is associated free aortic regurgitation. Morphia should never, I think, be given in those cardiac cases in which there is œdema of the lungs or much bronchial secretion. I have seen very disastrous results from its administration under such circumstances.—*Edinburgh Medical Journal*, *May*, 1895, *p.* 961 (See also *Synopsis* of this volume of the *Retrospect*).

31.—SOME REMARKS ON THE MODE OF ACTION OF THE SCHOTT TREATMENT AND ITS INDICATIONS.

By Sir William Broadbent, Bart., M.D., F.R.C.P.

My personal observation of this treatment and experience of its results have not been large, but they have been sufficient to convince me of its beneficial influence, and to enable me to understand in some degree the way in which the good results are obtained.

The immediate effects of the resisted movements is to enlarge the artery and lower the tension of the pulse in the limb which is being exercised. This is at once perceptible to the finger in a suitable case. Whatever the method by which this effect is produced, it is in my judgment the most important factor in the result. As to the method, I agree in the main with the conclusions arrived at independently by my son—namely, that the resisted movements give rise to a physiological dilatation of the capillaries in the muscles, which is continued into the arterioles and arteries to allow of the additional supply of blood. The resistance to the onward movement of the blood is diminished and the left ventricle is relieved; the output at each systole is increased, the over-distension of the ventricle is lessened, and the contraction is more efficient. At the same time, from the character of the exercises, the compression of the veins, which drives on the venous blood to the right heart and gives rise to the dyspnœa attending exertion, does not take place. There is thus a transfer of blood from the venous to the arterial system, which is the exact reverse of the tendency attending most forms of heart disease. One cannot help being reminded of the extraordinary difference as regards breathlessness experienced by sufferers from heart disease from going upstairs backwards instead of in the usual way. It is not a mere matter of pace; the ascent can be made more rapidly

backwards than forwards without distress. The muscular effect is the same: the difference probably lies in the less rapid propulsion of blood towards the heart.

Such a result had not been foreseen, and it is natural that it should be attributed to reflex influence on the heart. It is not by any means denied that this plays some part in the process, more particularly as diminished peripheral resistance has been shown experimentally to accelerate the action of the heart, whereas it is here accompanied by diminished frequency of the pulse. My observations, however, have led me to the conclusion that the primary and principal effect is on the peripheral circulation.

The Schott treatment thus differs from the Oertel treatment by graduated walking exercise at a certain altitude, not simply in method but in principle. In the latter, the object is to obtain compensatory cardiac hypertrophy by means of exercise and fresh air; in the former, the primary aim is to relieve the over-taxed ventricle, which may open the way to compensatory changes later. The Oertel treatment may indeed supplement the Schott treatment of heart disease.

Experience must ultimately decide how far and in what cases the baths and movements are especially useful. If their mode of action is explained entirely by reference to a reflex stimulation of the heart, which we can neither estimate nor understand, exaggerated ideas will be entertained as to their value and application. They evidently constitute an additional resource in the treatment of failing compensation attended with damming back of blood in the venous system, but there must be limitations and dangers which will have to be ascertained and pointed out. Dr. Schott has not considered the method applicable in cases of arterio-sclerosis, and no doubt with good reason. Whether the effects are attributed to direct influence upon the heart or to relief by relaxation of the peripheral vessels, they cannot be so readily obtained when the arteries are rigid; but if the left ventricle has become dilated in consequence of resistance due to this state of the vessels, it may be possible to relieve it.

In aneurism of the aorta, the effects on the circulation would tend to defeat the attempts at repair by laying down laminated fibrin.

An immense field for the treatment will be found in imaginary heart diseases and in neurotic disturbances of the heart.

The value of Dr. Schott's work in developing and demonstrating the remedial effect of baths and exercises in heart disease is enhanced by the freedom from exaggeration in the claims he makes for the treatment and the absence of any

attribution of mysterious virtues to the Nauheim springs. Medical men in this country will be all the more ready to send their patients to Nauheim, where under his guidance the good effects are most likely to be obtained, reinforced as they are by change of climate, freedom from work and worries, regulated diet and exercise, and useful discipline of various kinds.—*The Practitioner*, *May*, 1895, *p.* 396.

[See also *Retrospect*, June, 1895, p. 325.]

32.—AORTIC ANEURISM.

By Alex. James, M.D., Physician to the Edinburgh Royal Infirmary.

[Dr. James describes and discusses a case in a man, D. R., aged 64. He refers in the course of the lecture to two cases in which Head's sensitive areas (see *Brain*, 1893, lxi.) were present.]

We have two other patients with aortic aneurism in the ward, and in them we have marked out the painful and sensitive areas. I shall first, therefore, refer to them, and postpone alluding to D. R.'s case till afterwards.

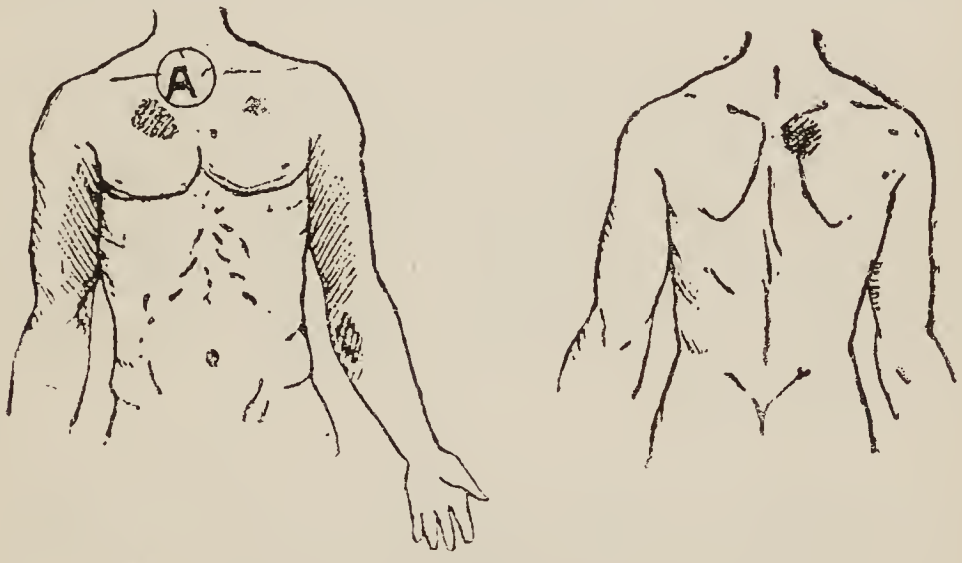


Fig. 1.

Thus Fig. 1 represents a patient D., at present in the ward. The area A represents the position of his aneurism as demonstrated by percussion. The shaded areas represent the parts where pain is specially felt, and where the skin can be shown to be specially sensitive to the prick of a needle. In this case we believe that the painful areas in the front of the chest, and the specially sensitive spots at the elbows, correspond to irritation of the first dorsal segment; that the painful areas along the

inner aspects of the upper arms correspond to irritation of the second dorsal segment; whilst that the painful spot in the right interscapular region posteriorly corresponds to irritation of the third dorsal segment. In this case the aneurism mainly involves the ascending arch and innominate, and, as seen, the tender areas are on both sides anteriorly.

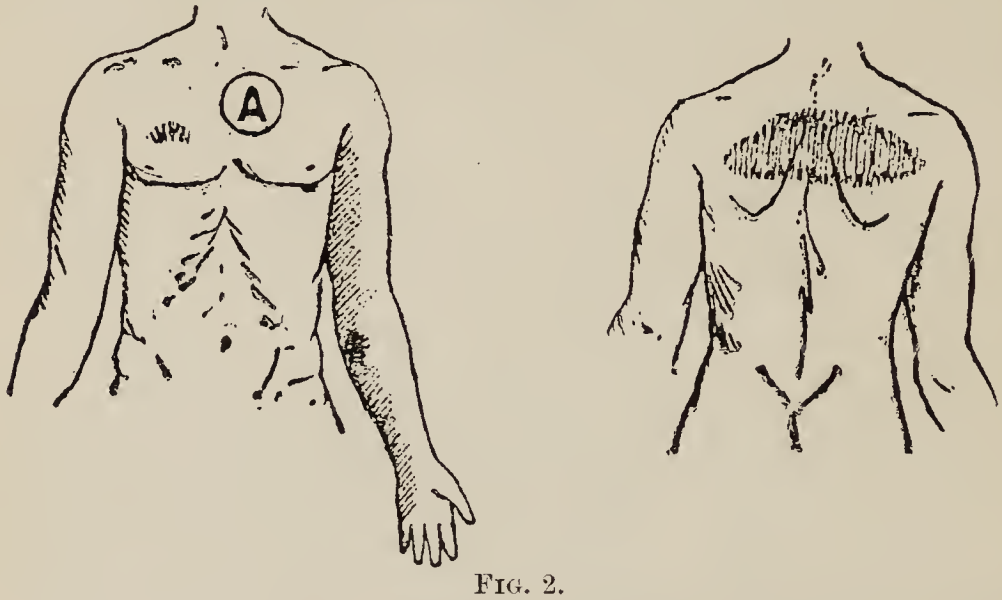


Fig. 2.

In the second case, R., Fig. 2, in whom the aneurism seems to involve mainly the transverse part of the arch, the painful chest area is anteriorly on the right side alone, and seems to correspond with the third dorsal segment. But the left arm shows, in addition to the specially sensitive spot at the bend of the elbow, an area of tenderness along its entire inner aspect. This extends right down to the fingers, where it corresponds to the distribution of the ulnar nerve, and indicates irritation of both first and second dorsal segments. Posteriorly there is a large area, symmetrical on either side. It is specially painful and sensitive, and seems to correspond with the second, third, and fourth dorsal segments.

In the patient D. R., the subject of this lecture, we had not time to mark out those areas carefully. It was noted, however, that, in addition to painful areas on the anterior and posterior aspect of the thorax, in addition to complaints of pain down his arms, and of occasional loss of power in his right arm, he complained of a painful spot at the back of his neck, about the vertebra prominens. This seemed to correspond with the posterior distribution of nerves from the first dorsal segment. In studying those areas in all those cases we endeavoured to discover if any precise connection existed between the locality of the aneurism on the arch and the painful or sensitive areas. We could not, however, come to any more definite conclusion on this matter.

Treatment.—Our cases of aneurism are being treated by absolute rest, low diet, and large doses of iodide of potassium, with the addition of a little chloral if iodism tends to show itself. As regards the mode of action of the iodide of potassium in such cases there is great difference of opinion. According to some it acts by lowering the blood pressure; according to others by increasing the secretions, inspissating the blood, and so promoting clot formation; whilst a third view is that it acts by causing thickening and contraction of the sac. As to its power of lowering the blood pressure, all our observations negative this. With the sphygmomanometer we have found that no marked lowering of the pressure occurs as the result of the use of large doses of iodide of potassium, and you will remember the case of the man X. (specific disease), in whom we gradually increased the dose of the iodide till he was taking between 2 and 3 drachms a day, and in whom careful sphygmomanometric examination showed no lowering of the blood pressure.

The view that iodide of potassium causes inspissation of the blood we also do not feel inclined to accept, for in several of the patients in our ward who are taking iodide of potassium we have tested this, and we found that the specific gravity of the blood was not increased. Whether or not, however, the iodide has a special effect in causing the blood to clot more rapidly we are unable to say.

Lastly, as regards the view that the benefit of the iodide is to be ascribed to its affecting the wall of the aneurismal sac. It is evident that as the main effect of the drug is supposed to be to promote absorption, any beneficial effect which it exercises in aneurism must be the result of its tending to remove whatever causes the sac wall to yield, and not of its tending to increase what might cause the sac wall to contract. Hence some hold that the iodide is useful only in specific aneurisms, but on this point we cannot speak with any certainty.—*British Medical Journal*, *June* 29, 1895, *p.* 1429.

33.—ATHEROMA AND SOME OF ITS CONSEQUENCES, WITH THEIR TREATMENT.

By T. Lauder Brunton, M.D., F.R.S., Physician to, and Lecturer on Pharmacology and Therapeutics at, St. Bartholomew's Hospital.

[The following is taken from a lecture delivered by Dr. Lauder Brunton before the Cardiff Medical Society. Much interesting experimental work and theoretical considerations have been necessarily omitted owing to conditions of space.]

Sometimes it is the aorta which becomes affected, while the smaller arteries remain comparatively free. At other times it is the small arteries which become affected, while the aorta remains healthy. Consequently the symptoms which result from atheromatous disease of the vascular system may differ much, but there are two great groups which come prominently forward, namely, those in which the symptoms are cardiac and those in which they are cerebral. The cardiac affections are chiefly connected with atheroma of the aorta. The cerebral symptoms, although usually associated with atheroma of the vessels in the brain, may also be due to alterations in the aorta and in the heart itself. The atheromatous process is so common in old age that it is usually regarded as a necessary concomitant of advancing years. It has been compared by Virchow to chronic arthritis of the joints, and has been called by him "arteritis deformans," while he calls the joint affection "arthritis deformans." But while a certain amount of atheroma is almost invariably associated with advancing years, the arteries may become atheromatous at an earlier age in consequence of disordered nervous supply or disordered tissue change and elimination. Thus it has been found experimentally by Lewaschew that irritation of nerves leads to changes in the vessels which they supply, the vasa vasorum being at first dilated, and afterwards the middle coat becoming displaced by connective tissue, so that the internal coat and adventitia become blended. Clinical observation also shows very strikingly how mental worry affects the vessels, and how frequently in elderly people it is followed by vascular changes. Altered nutrition also affects the vessels enormously, and, although atheroma may occur to a very great extent apart from syphilis, yet this disease certainly leads very frequently to endarteritis and vascular degeneration, with weakening of the large vessels or occlusion of the smaller. Endarteritis has also been produced experimentally by lesion of the kidneys, leading to their contraction, and the atheroma which is so frequently found along with contracted kidney may, as I hope to show, be actually dependent to a certain extent on that condition. The consequences of atheroma will differ according to the size of the artery affected and the extent and nature of the affection. Atheroma of the aorta may not only weaken the coats of the vessel and give rise to the formation of aneurism, but may affect both the heart and nerve centres in other ways. Atheromatous thickening close to the aortic orifice will tend to lessen the calibre of the coronary arteries, and at the same time render them rigid and unyielding. Should an atheromatous mass undergo softening, so that an ulcer forms in the interior of the aorta, numerous granules will be discharged into the blood, and will be carried to various

organs and there cause embolic infarcts, arresting more or less completely the circulation in the vessel beyond the part where their course is arrested. Similar consequences may arise from atheroma of medium-sized vessels, and when very small vessels are affected their lumen may be completely obstructed by the gradual thickening of their walls, instead of by sudden arrest of the circulation by an infarct. Yet in these vessels, though the circulation has been gradually diminishing, its final arrest may be comparatively rapid, because of the formation of a thrombus at a point where the lumen of the artery has already been diminished. No organ of the body is free from the risk of vascular obstruction, but the two organs in which the symptoms are most marked and important are the heart and the brain, and the symptoms may, therefore, be divided into two great classes of cardiac and mental. All the symptoms may again be subdivided, according to their severity, into functional and organic. The term "functional" is in some respects objectionable, for it is very unlikely that any change in the function of an organ takes place without definite organic change, either physical or chemical, in the organ itself. Yet the term may be employed to indicate those slight alterations in function to which, on account of our imperfect knowledge, we are unable to assign an organic cause, but in which the cardiac disturbance is such as to indicate disordered innervation or weakness of the muscular fibre, or both conditions together. The actual weakness makes itself felt in ready exhaustion and shortness of breath on exertion, while the disordered innervation evidences itself in irregular action, discomfort or a feeling of constriction on the chest, or various degrees of pain up to the most severe. The discomfort or pain is generally increased by exercise, and consequently the patient is induced or compelled to give up the active employments or exercise to which he has been accustomed. Emotion has a similar effect to exercise, and the patient is apt to feel a great dislike to anything that calls for mental strain. The condition he suffers from is undoubtedly a complex one, for though the mental faculties are those which are called into play by emotion, yet the effect of arterial degeneration upon them is probably due to an alteration of the heart as well as the brain.

Whenever any organ is called upon for increased exertion, whether it be a muscle, a gland, or the brain itself, an increased supply of arterial blood appears to be necessary, and in a healthy organism this increased supply is always provided to the organ by dilatation of the arteries which supply it. But when the vessels become atheromatous and rigid they can no longer dilate and supply an increased amount of blood to an organ when the necessity for it arises. The first organ to be supplied from the

arterial system is the heart itself, and we find that an individual may complain of symptoms known only to himself, and which probably indicate commencing atheroma, when to all appearance he is perfectly sound, and when his friends very often say they never saw him looking fitter in his life. It has seemed to me that one of the first signs is that the patients complain that they "have lost their nerve" for all ordinary work. They are perfectly fit for all ordinary occupations or businesses, for they can hunt or shoot, but when any call is made upon them for extraordinary exertion they feel themselves unequal to it. When hunting they no longer like to take a big jump, not that they feel physically unable for it, but they have a sort of indefinite fear of it, or, as they say, they "funk" it. They do not like any business question which involves sudden decision, and they may even go so far as to dislike meeting with strangers and having to talk to them, on account of the extra exertion involved. Yet there may be no outward indication of all this, and the patient may be able quite successfully to conceal his feelings from everybody else. It is at present almost impossible to say how much of these feelings are really due to commencing atheroma and rigidity of vessels and how far they may be caused by mere alterations in tissue change, and more especially by the imperfect removal of uric acid and other products of tissue waste and their consequent accumulation in the blood or organs, as mentioned by my friend, Dr. Mitchell Bruce, in his admirable description of the gouty heart (*The Practitioner*, January, 1895. See *Retrospect*, vol. cxi., p. 230). Nor will it be easy to decide such a question, for the same treatment that would be likely to remove the uric acid and other waste products will be likely to improve the condition of the vessels and to restore the patient, at least for a time, to comparative health. If the coronary arteries are more severely implicated, the effect of imperfect nutrition of the heart itself will become still more evident, its impulse will tend to become feeble, its sounds indefinite, the pulse feeble, irregular, or intermittent, the breath shorter, and the discomfort or pain on exertion more pronounced. There may be ringing in the ears, giddiness, and occasional fits of faintness or complete loss of consciousness. Here, again, it is difficult to assign an exact cause for such nervous symptoms. One is apt to say loosely that they are "due to a little weakness of the circulation," without attempting to formulate definitely the nature of this weakness. They may possibly be sometimes due to ptomaines or leucomaines, or they may be caused by minute hemorrhages in the nervous centres from the bursting of capillary aneurisms, but the transitory nature of the symptoms seems to indicate that frequently they are more likely due to minute embolisms than to hemorrhages.

Men with atheromatous vessels may go on for a number of years and no accident may befall them, but if the atheroma is well marked I think it is right that both they and their friends should know that the man is rather unsafe, and that he may, without much apparent warning, do a foolish thing. It is in such cases that we hear the story that "Mr. So-and-so lost his money, and this preyed so much upon his mind that he went off his head." If the case had been correctly read it would probably have been that the man had atheromatous disease, leading either to embolism or to hemorrhage in some part of his brain, which gave rise to no motor symptoms, but so disordered his higher faculties that he committed some folly, in consequence of which he lost his fortune. The process of cerebral degeneration, of which this was the first proof, then went on until it became evident to everyone. It is strongly advisable for men aged sixty and upwards who are engaged in business and have atheromatous arteries to guard themselves against the chance of doing anything foolish, and if they are in partnership the question will arise how far the partner ought to be informed of the possibility of such an occurrence in order to safeguard his own interests as well as the patient's.

In cases of severe affection of the coronary arteries the chief risk is angina pectoris, although it is quite possible that sudden death may occur in such cases without any pain at all, and a patient may go to bed perfectly well and happy and be found dead in the morning. The pain of angina pectoris is in all probability due to weakness of the heart in proportion to the resistance it has to overcome, and may be removed either by increasing the power of the heart or lessening the resistance. In most cases it is necessary to lessen the resistance in order to obtain rapid relief. This is effected by dilating the vessels by the aid of nitrite of amyl or other nitrites, such as that of butyl, nitro-glycerine, nitrite of soda, or hydroxylamine. All these have practically the same action in causing dilatation of the arterioles. All these substances act in much the same way, and dilate the peripheral arterioles so that they present less resistance to the flow of blood through them. The pressure falls, and the heart, having little resistance in front of it, is able to empty itself easily and thoroughly. This is readily seen from tracings made, in which, as the pressure falls, the oscillations due to each beat of the heart become very much more marked than before. The nitrite of amyl and nitrite of iso-butyl are the quickest to act, and thus they afford relief more quickly than the others; but nitrite of soda appears to have a more prolonged action, and so does nitro-glycerine, which, being on the whole the most convenient, has become more used than any of the others. The last substance that I have tried for the relief of

angina pectoris is hydro-chlorate of hydroxylamine. It seems to have a more permanent action than any of the others, but it tends to irritate the stomach, and the trials I have made of it have not yet shown it to possess such advantages over the others as are likely to make it displace them, yet at the same time it is a remedy worthy of a wider trial. But all these remedies are merely palliative ; they tend to avert a fatal termination, but they do not have much effect upon the vascular condition of the heart and vessels which give rise to the pain. The drug which has hitherto appeared to be most successful, not only in relieving the pain of an aneurism, but also in averting the occurrence of spasms of angina pectoris, has been iodide of potassium in large doses of from 10 to 30 grains three times a day.

The kidneys are the natural emunctories of the body, and through them the products of tissue waste ought to be eliminated. But some products, such as uric acid and urate of soda, are very sparingly soluble, and if little water be drunk they may remain embedded in the tissues instead of being eliminated. Many patients, and especially those having a gouty tendency, hardly ever touch water pure and simple. They may take a little in the form of soup, tea, or coffee, but their chief drink with their meals is wine, and between meals they do not drink at all. In the treatment of atheroma, as well as of rheumatic joints, I regard the administration of hot water as a most useful agent, and one which ought to be continued for months or years together.

[Dr. Brunton then discusses the value of massage in this disease, supporting his argument by much experimental investigation. He concludes as follows :]

By the use of massage the circulation is quickened, the resistance is diminished, the filling of the blood during diastole increased, and thus the pumping of waste products out of the heart itself is more thoroughly effected. At the same time there can be little doubt that a similar increase of blood-supply to the heart itself takes place even if the coronary arteries are contracted ; and as it is called upon to make no extra exertion, but, on the contrary, to work against less pressure than before, we may expect it to become better nourished and better able for the work. But simple massage will not increase the thoracic movements, and these, as I have mentioned, are important adjuncts. Therefore it is that, if the patient be strong enough, carefully graduated movements may he added to massage or replace it entirely. For these movements will increase the flow of blood through the muscles and have all the other useful actions I have mentioned as resulting through massage. Massage in the treatment of heart disease is, I believe, first mentioned by Harvey, but its employment was first reduced to

a system in Sweden by Ling and others. The Swedish cure attracted but little attention in this country or on the Continent until the system of treatment by baths and movements was taken up by the brothers Schott, of Nauheim, and the great success which has attended the use of this method seems likely to lead to its general adoption and recognition.—*The Lancet, October* 12, 1895, *p.* 897.

DISEASES OF THE ORGANS OF RESPIRATION.

34.—REMARKS ON THE TREATMENT OF FŒTID EXPECTORATION BY THE VAPOUR OF COAL TAR CREASOTE.

By Arnold Chaplin, M.D., M.R.C.P., Assistant Physician to the City of London Hospital for Diseases of the Chest, and to the East London Hospital for Children.

[The following is taken from a very important and practical paper read by Dr. Chaplin before the British Medical Association, 1895. The cases with some other portions have had to be omitted owing to space.]

Fœtid expectoration, though not very common, is yet, when present, such a persistent and distressing symptom, that any method of treatment likely to be beneficial merits earnest consideration. It had always seemed most rational to treat fœtid expectoration by means of antiseptic remedies, which, in the form of inhalations acted directly on the seat of the disease. The main objection to be urged against this form of treatment is its insufficiency. The mere inhalation of some antiseptic vapour from a suitable inhaler is nearly impotent to render the expectoration free from odour, and still less likely to cause the expulsion of the long-retained, fœtid contents of the bronchial tubes. When the inhalation is discontinued, the fœtor is as bad as before.

To obviate these drawbacks, the attempt was made to treat patients with fœtid expectoration by placing them for a certain time each day in an atmosphere of a highly-antiseptic, deodorant, and penetrating vapour, so that there could be no doubt that the medication employed reached the seat of the disease, and by its irritating properties caused the expulsion of the retained phlegm. After several trials the vapour found suited best to these conditions was that of the common

commercial coal tar creasote; and it is to the result of the treatment of fœtid expectoration by this drug that this paper refers.

Bronchiectasis the Main Cause of Fœtid Expectoration.—For all practical purposes the causes of this condition are three, namely, bronchietasis, gangrene of the lung, and putrid empyema finding exit through the bronchi. Fœtid expectoration arising from gangrene of the lung and putrid empyema need not detain us, for the former is, as a rule, such a rapidly fatal complaint, and attended with such profound constitutional disturbance and depression, that patients affected with it are rarely in a position to undergo any energetic treatment for the removal of the fœtor; while the only rational treatment for putrid empyema making exit through the lung is clearly external drainage by means of an incision through the chest wall.

The cases, therefore, most suitable for treatment by means of creasote vapour are narrowed to those arising from dilatation of the bronchial tubes. Bronchiectasis may give rise to fœtid expectoration in two ways: (1) by the dilated tubes becoming so large, or so numerous that sputum is retained a sufficient length of time to allow of decomposition; (2) by ulceration of the wall of the tube, and subsequent necrosis of the lung substance. When either of these conditions supervenes upon bronchiectasis, grave symptoms appear. The phlegm, which before had been simply profuse and expelled in paroxysms, now becomes horribly foul.

Treatment by Internal Medication, Inhalation, and Injection.—The catalogue of the various ways of treating this complaint is long, and of all it may safely be said that, if they do not altogether fail, they at least leave much to be desired. Innumerable drugs have been employed, either internally or as inhalation, most of which have a known power of correcting fœtor, and promoting asepsis: among them may be mentioned creasote, iodine, carbolic acid, eucalyptus, turpentine, and the balsams. Experience shows that internal remedies are useless, and the inhalation of the various antiseptics only of the most fleeting benefit. Indeed, the only method that has been attended with any measure of success is that of intralaryngeal injection; but from this treatment lasting good has not come, and the application of the remedy is by no means as easy as is supposed.

Surgical Treatment.—All surgeons will probably agree that the cases in which good comes of operative procedure are very few. Could the surgeon drain all the dilated bronchi, untold benefit would result, but since he can only effectually deal with some of them, permanent and lasting improvement cannot be

expected. Of course where the bronchiectasis is single much good results from operation. During the past few years, at my suggestion, surgical interference has frequently been resorted to, but so unsatisfactory, and even disastrous, have been the results, that I could wish I had never proposed such a course, and I feel very certain that I shall never do so again.

Creasote, as manufactured by Messrs. Burt, Boulton and Haywood, of Silvertown, contains properties well suited to the treatment of fœtid expectoration :—(1) The vapour is penetrating and capable of reaching the dilated bronchus ; (2) it is irritating, and thereby able to cause, by inducing cough, expulsion of the retained and decomposed matter ; (3) it is antiseptic, and may be expected to do something towards rendering the bronchiectasis, which it reaches, free from the putrefactive germs which cause the fœtor.

A small chamber, about 7 feet square by 8 feet high, was set apart at Victoria Park Chest Hospital for this purpose. It was excellently situated, being an outhouse connected by a porch with the main building of the hospital.

This chamber was made as airtight as possible, all chinks and holes in the walls being stopped up with cotton wool. It could thus be easily filled with the creasote vapour. In the centre of the room, on a pedestal, a spirit lamp was placed, and over the lamp a flat open dish, into which was poured the creasote. The lamp was lighted, and the room very soon became filled with the characteristic pungent fumes. The patient sat in the chamber and inhaled the vapour, at first with only a gentle heat applied. But as time went on the patient was able to stand the inhalation with impunity, sitting with her head over the dish, with the chamber so filled with the vapour that it was difficult to distinguish objects. A few minor, but not unimportant, details should receive attention. Thus it was found that patients, until accustomed to the vapour of the creasote, complained of the irritating and smarting effect it had upon the eyes and nose. To obviate this the simple expedient was adopted of protecting the eyes by a pair of watch glasses framed in sticking-plaster, thus effectually preventing the ingress of the fumes. The nostrils were also plugged with cotton wool. By attention to this small matter of detail the most unpleasant concomitant of the treatment is removed, and by this simple plan many patients were enabled to obtain the full benefit of the vapour, who, without it, would scarcely have been able to stand the treatment for any length of time. Then again, it was found that the hair and clothing, especially if the patient were a woman, retained the scent of the creasote. To prevent this a towel pinned over the head and a loose dressing gown were used with complete success.

The patient first subjected to this treatment began with an inhalation lasting half an hour, and after two days was able to endure it without trouble for an hour or an hour and a half. In this way the treatment was proceeded with every day for six weeks.

The Effect of the Inhalation.—First, as to the cough. As is well known, bronchiectasis gives rise to periodic fits of coughing, which come on with violence, and end by the expulsion of large quantities of phlegm, then all is quiet for some time until the dilated tubes become full again. Now if, after one of these coughing fits (when it may be presumed that the tubes are empty), the patient be subjected to the inhalation, one is astonished to find that by the irritation of the fumes a large quantity of phlegm is expelled in coughing. The patients themselves have often been known to express wonderment that so much phlegm is ejected, when from experience they believed that all expectoration had been got rid of by the ordinary fit of coughing. This residual phlegm, as it may be termed, is generally horribly foul, and continues to be expelled during the sitting. The action of the inhalation in bringing about the discharge of expectoration, which under ordinary circumstances would have remained decomposing in the dilated tubes, may be regarded as one of the most important features in the treatment.

The inhalations have also a marked effect upon the character and amount of the expectoration. At the first two or three sittings the phlegm is profuse and fœtid, but as the treatment proceeds it becomes smaller in amount and less foul, until after a certain time, varying from one to four weeks, the odour has much diminished, and the expectoration is only trifling in amount. Towards the end of the treatment the amount of expectoration not uncommonly sinks to almost zero, and the fœtor quite disappears.

Another effect which patients often insist on, is that, after each inhalation and the accompanying expulsion of phlegm, the chest feels freer and less clogged. They often speak of a feeling as if more air could be drawn into the lungs. The dyspnœa is so much improved that staircases which before had been unclimable are now mounted with ease; but next to the disappearance of the fœtor, by far the most important effect of the inhalation is the great improvement in the general condition of the patient.

Lastly, if the chest of a patient who has undergone this treatment be examined, it will be found that where before there was only occasional evidence of a bronchiectasis, owing to the retained phlegm filling up the cavity, there is now to be heard, almost continually, hollow breath sound, with but few bubbling *râles.*

The practical bearings of this paper may be thus summed up :—(1) The usual treatment of fœtid expectoration is unsatisfactory, and as a rule leads to but little permanent benefit ; (2) the onset of fœtor of the phlegm is sufficiently grave to demand a trial of any new method of treatment ; (3) the form of treatment upon which this paper is based offers a prospect of amelioration, or even cure, to the victim of this complaint, such as will favourably compare with other ways of dealing with it. Lastly, the application of the method is easy, attended with no danger, and cheap, half a gallon of creasote costing only 4d.—*British Medical Journal*, *June* 22, 1895, *p.* 1371.

35.—SOME CASES OF DISEASE OF THE LARYNX AND BRONCHI TREATED BY INTRA-LARYNGEAL INJECTIONS.

By Adolph Bronner, M.D., Laryngologist to the Bradford Infirmary, Surgeon to Bradford Eye and Ear Infirmary.

In treating diseases of the larynx and bronchi we try, roughly speaking, to do two things : first, to cure the diseased mucous membrane ; and, secondly, to relieve the irritation and cough. This can most readily be achieved by the application of local remedies. Of these we have any number, the efficiency of which has been tried on the mucous membrane of other parts of the body. We know that large quantities of nearly any non-irritating and aseptic fluid can be safely injected into the bronchi, and that they are readily absorbed there (Botey, Schmalz, and others). A menthol solution not only relieves the cough, but has also strong deodorising and antiseptic properties. I generally use a five to 20 per cent. solution in paroleine. If about 20 per cent. of water or rectified spirits are added, and the injection well shaken before use, it mixes up much more readily with the secretion in the bronchi. When the expectoration is very offensive and copious, I add 10 to 50 per cent. terebene, or two per cent. oleum pimentæ (largely used by dentists), or three per cent. europhen. This is one of the few powerful antiseptics which is soluble in oil. I have tried a solution of salol, which, however, sometimes causes nausea and irritation.

In cases where there is not much secretion I add two or three per cent. of bicarbonate of soda or boric acid, or three to 15 per cent. of tincture of iodine. I have had no experience in the injection of terebene in cases of hæmoptysis, as recommended by Campbell. A glass and metal syringe (made by Down) is

used which can be thoroughly sterilised, and which is so cheap that a separate syringe can be kept for each patient; it contains about one drachm. If necessary, three or five injections can be made at one sitting, for instance, in cases of purulent bronchitis or bronchiectasis. Before injecting I apply a few drops of a five per cent. cocaine solution for the first time or two, till the patient has got used to the operation. In some cases (bronchitic asthma) menthol causes great irritation. It is of great importance that the first few injections should cause as little inconvenience as possible, or else the patient will not call again. The patient is told to take a few deep inspirations and then to say "ah." The syringe is then put in position, and as soon as the cords open the end is introduced and the fluid injected. By pointing the end to one side we can to a certain extent inject the fluid into the right or left bronchus. The various solutions should be kept in thin glass bottles, a separate one for each patient, and thoroughly sterilised. Pasteur's flask, or an ordinary thin glass bottle, can be used. The majority of cases which I have treated by injections are naturally of laryngeal disease, chiefly tuberculous or atrophic laryngitis.

[The author then gives short details of two cases of laryngo-tracheitis, two of atrophic laryngitis, one of chronic bronchitis with asthma, and one of tuberculous laryngitis.]

These few cases (it is needless to record any more) prove that intralaryngeal injections are most beneficial in some diseases of the larynx and bronchi, and that this method of treatment, although not new, deserves to be more widely known and adopted than is at present the case.—*British Medical Journal*, *October* 26, 1895, *p.* 1025.

36.—THE PROGNOSIS AND TREATMENT OF LARYNGEAL TUBERCULOSIS.

By Percy Kidd, M.A., M.D., F.R.C.P., Assistant Physician to the London Hospital, Physician to the Hospital for Consumption and Diseases of the Chest, Brompton.

[The following is taken from a clinical lecture by Dr. Kidd :]

In comparatively recent times, the development of laryngeal tuberculosis was generally considered to render the prognosis absolutely hopeless. Fortunately it is now possible to give a more discriminating prognosis in such cases. In the first place, the prognosis should never be based exclusively on the laryngoscopic appearance alone, unless in one definite type of disease, to which I will refer presently. In all cases we must consider the general condition—temperature, digestion, weight,

complications, and state of the lungs—If we hope to form an accurate prognosis.

Among the local symptoms which influence our prognosis most vitally, I may mention two: severe pain and signs of laryngeal stenosis. Where pain is a prominent symptom, you will invariably find either infiltration, or ulceration of the epiglottis or of the arytenoid regions. Pain may be more or less continuous in such cases, but is more often chiefly experienced when the patient swallows. The reason of course, is that during deglutition, the contraction of the constrictor muscles of the pharynx squeezes the sensitive epiglottis and arytenoids, and causes exquisite pain. Where we find any marked infiltration of these parts with the laryngoscope, we may give a confident prognosis of the most ominous kind, even if other symptoms and signs should seem less unfavourable. Owing to the interference with the act of swallowing, such patients habitually starve themselves, and sometimes refuse all food, whereby the course of the disease is greatly accelerated. Fortunately we now possess certain remedies which enable us to relieve this terrible symptom to a considerable extent, but the relief can rarely be more than temporary. The presence of marked stenosis is also a most unfavourabe element in the prognosis. It is very common indeed to find symptoms of obstruction and pain occurring together.

Where the laryngeal affection is limited to the vocal cords, or inter-arytenoid fold, and especially if there be only slight swelling, the prognosis is much more favourable, and such cases are much more amenable to treatment. Again, the epiglottis shows unilateral, or circumscribed swelling or ulceration, the prospects are more favourable, and local treatment may be attended with a considerable measure of success.

To turn now to treatment, we may discuss the subject under the heads of (*a*) general and (*b*) local treatment.

The general treatment is practically that of pulmonary tuberculosis, with certain reservations as to climate. The best atmospheric conditions are: a temperate climate, a moderate degree of moisture in the air, and an absence of dust. The south coast of England, Mentone, and other health resorts on the French or Italian Riviera, Madeira, the south coast of Spain, are all suitable places of residence. For English patients, and especially those whose means are limited, there is probably no locality better than the south coast stations of our island. It is generally allowed that the high Alpine stations, which give such excellent results in cases of chronic pulmonary tuberculosis, are not specially suitable for throat cases. In fact, the extremely dry, rarefied air of such places seems to have a prejudicial effect in most cases of laryngeal tuberculosis.

Although it is desirable, if possible, to secure the atmospheric conditions just mentioned, it must be admitted that many cases do well in such a theoretically undesirable atmosphere as that of London.

Is tobacco smoking to be forbidden or not? Most patients with this disease have no desire to smoke; but in certain instances there is a craving for tobacco. In such circumstances the patient may be allowed to smoke once or twice a day, after meals, provided it be out of doors, or in a large, well-ventilated room, the object of these restrictions being to prevent the inhalation of smoky air into the larynx and lungs. It is hardly necessary to say that such patients should be warned against the practice of inhaling tobacco smoke.

As to food, only a few directions are required. The patient should avoid strong alcoholic drinks, spices, and highly seasoned dishes, which irritate the pharynx and epiglottis.

Local treatment may be divided into radical and palliative. Under the head of radical treatment I shall only speak of one remedy, which I have found to be of undoubted use. Lactic acid, recommended by Dr. Krause, of Berlin, has been extensively employed during the last five or six years. Most of those who have tried it thoroughly speak favourably of its effects. I have employed it myself for a large number of cases, with excellent results. The method adopted is as follows:

The larynx is first well brushed twice with a 20 per cent. solution of cocaine, then, after an interval of about three minutes, a 50 per cent. solution of lactic acid is thoroughly rubbed into the affected part, and a second application of the acid is made as soon as the patient has recovered from the effects of the first. The acid is applied on cotton wool fixed to a laryngeal screw holder. Similar applications are made at intervals of two or three days, in some cases every day; and after four or five sittings pure lactic acid is substituted for the weaker solution. As a rule, eight or ten applications, at least, are required. Most authors recommend much weaker solutions of lactic acid, but I have obtained far better results since I adopted the method just described.

Some writers state that the lactic acid treatment causes severe pain. This has not been my experience, a result which I attribute to the thorough cocainisation employed before the introduction of the acid.

It is of the utmost importance to make a judicious selection of cases. Thus, it is useless to apply lactic acid unless there is some breach of surface; that is to say, cases of infiltration without ulceration are unsuitable. The most favourable cases are those in which there is circumscribed ulceration without marked submucous swelling.

In some instances where small nodular deposits have been found on accessible parts, like the epiglottis, I have obtained good results from a cautious employment of the galvano-cautery, followed by a thorough application of lactic acid. In such circumstances, destruction of the surface produced by the cautery permits the acid to penetrate into the tissues.

The lactic acid treatment has yielded several complete cures. Two cases are mentioned in illustration.

This method of treatment involves considerable self-restraint and determination on the part of the patient. In some cases, where there is great nervousness and irritability, it may be quite impossible to carry it through. Unless the patient can stand vigorous and thorough applications, it is better to abandon all idea of radical treatment. Extensive, or actively progressing disease of the lung, marked debility, and severe constitutional symptoms generally preclude the adoption of active local treatment. I must, however, make one exception to this rule. When ulceration of the epiglottis can be recognised in an early stage, an attempt to arrest the disease may be made. For even if lactic acid should fail to completely check the ulceration, it often arrests it for a time, and thereby reduces the severe pain and discomfort attending the act of deglutition.

Before leaving this part of the subject I must remind you that, although most satisfactory results may be obtained in certain cases, we have always to reckon with the possibility of re-infection of the larynx by means of the sputum coming from the lungs. Bearing this in mind, we should be careful not to speak too positively of the good results to be expected from local treatment.

When, from various causes, radical treatment is inadmissible, we must be satisfied with palliative measures. The most generally useful remedy is a two per cent. solution of cocaine, in the form of a spray, given a few minutes before meals. It may be necessary, in some cases, to apply a 10 or 20 per cent. solution with a brush, but, inasmuch as the spray can be used by the patient himself, this method is the more generally convenient.

The local application of menthol, in the form of a 10 or 20 per cent. solution in olive oil, is a useful substitute in some instances. Insufflations of $\frac{1}{6}$ grain of morphia, with a little starch powder or sugar of milk, also give considerable relief. Steam inhalations, again, may be employed.

The following formula, taken from the Brompton Pharmacopœia, is often very useful in allaying laryngeal irritation :— Glycerine of carbolic acid 1 drachm, choloform 10 minims, added to a pint of boiling water.

Some patients experience considerable relief from sucking pieces of ice.

When, in spite of all these measures, the patient is unable to swallow, Wolfenden's plan may be tried. The patient lies on his face on a couch or bed, with his head over the edge, and drinks milk or other fluid through an indiarubber tube. At times this plan is very successful. As a last resort, it may be necessary to feed the patient through the nose, a procedure which sometimes does very good service.

In conclusion, I must briefly allude to the question of tracheotomy. This operation is very rarely required, the only indication being afforded by the existence of severe stenosis and impending asphyxia.—*The Clinical Journal, July* 31, 1895, *p.* 205.

37.—PNEUMONIA AFTER INFLUENZA.

By Guthrie Rankin, M.D. Glasgow, F.R.C.P. Edinburgh,
Late Medical Officer, Warwick Dispensary and
Cottage Hospital.

In the outbreak of influenza which developed so suddenly over this country in February last, and which happily has now subsided, pneumonia was the complication most to be dreaded, and was the immediate cause of death in a large proportion of cases. In previous epidemics pneumonia has always been a common sequela, but in the present instance the examples which have come under my observation have presented certain characteristics strikingly different from the ordinary type of the disease. This year's epidemic first broke out in this neighbourhood in an institution which comprises a resident population of close upon 150, and the cases to which the present notes refer, though not essentially different from others met with in outside practice, were brought under notice with special prominence because of the concurrence under one roof and at one time of several bearing the same characteristics and exhibiting the same departures from the ordinary standard. Very few of the 150 escaped the attentions of the disease—many were so slightly ill as to require little care ; others experienced an ordinary attack of the malady, which incapacitated them for three or four days, but which left them at the end of that time practically well ; while a few had to contend with it in a more pronounced form, and of this latter number 5 suffered from pneumonia. The hygienic arrangements of the institution are well devised, carefully looked after, and the average health of the inmates leaves nothing to be desired. Of the whole number attacked by influenza, only 17 were acutely ill, and, except the cases now

under consideration, they all recovered completely and within a comparatively short time. The matron, who was the first victim of pneumonia, died from cardiac failure on the eighth day of her illness. Her case proved fortunately to be the only fatal one, and while the leading features of her attack were the same as in all the others, her chances of recovery were lessened by the previous existence of a complicated form of heart mischief. Of the other 4 cases, 1 was mild and abated on the fourth day, another resolved by lysis, and the remaining 2 by crisis, each on the eighth day of the illness. It should perhaps be noted that the case which resolved by lysis was the son of parents who were first cousins, and in whose family history there was a pronounced phthisical taint. The symptoms of all 5 cases were strikingly similar, and a short description of one will best serve to call attention to the unusual features of the whole series.

A lad, aged 15, with a fair physique, but with a neurotic diathesis, was seized with influenza in a sharp but ordinary form. From this he emerged like his neighbours, but on the third day from the date of recovery from his influenzal attack he complained of not feeling so well. His temperature in the morning was 100° F., but there was then nothing to suggest the advent of inflammatory mischief anywhere. In the afternoon the temperature rose rapidly to 105·4°, the pulse was 120, and the respiration 44. There had been no rigor, he had no cough, no pain, and he complained of nothing but shortness of breath and thirst. Next morning the temperature was 100·4°, the pulse 100, and the respiration 40. He still had no pain and the cough was trifling, but he had constant nausea and occasional attacks of active sickness. Later in the day his temperature gradually rose to 103·4°, and in the evening it reached 105·2°. Under the influence of quinine and cold packs it receded, but at 10 o'clock the following morning it again reached 104·6°, the pulse being 100, and the respiration 38. There was no cough, but that morning he had twice expectorated some frothy mucus of a bright red colour; the nausea continued. He complained of wandering pains over his right side, which he mostly referred to the axillary region above the level of normal liver dulness, but physical examination failed to reveal any explanation. For the next three days his temperature did not exceed 104·4°, and was readily brought down to between 100° and 102° by cold sponging. At 2 p.m. on the eighth day it registered 103·6°, and at 10 p.m. it had fallen to 99·2°, from which there was no subsequent rise. During those three days his pulse varied from 80 to 100, but did not exceed 104; his respiration had never been less than 50, and frequently had numbered 65. The amount of cough was so small as hardly to deserve mention, and there was no return of the

red sputum; indeed, there was no expectoration of any kind. The physical signs remained indefinite, but some comparative dulness developed over the right lower lobe, and there was bronchial breathing, with slight increase of vocal fremitus in this region. After the crisis was over, on the eighth day, the physical signs rapidly vanished, without expectoration or cough or pain, and with no decided crepitatio redux, till on the eleventh or twelfth day the patient was perfectly sound, and only required time and care to restore his tone and re-establish his usual vigour.

In none of those 5 cases did a herpes develop, except in that of the lady matron, who died, and this is significant, because from time immemorial the occurrence of herpes in an ordinary case of pneumonia has been looked upon as a favourable indication. The unusual features of this short history are the absence of cough, the exceeding scantiness of expectoration, the frequency of respiration, the comparative slowness of pulse, even under the pressure of high temperatures, the entire absence in the early stages of physical signs, their very imperfect development later, and their speedy disappearance without notable crepitatio redux after the arrival of the crisis. None the less, the duration of the illness, its mode of termination, the pulse-respiratory ratio, the sudden initial high temperature, &c., are strongly characteristic of the common, everyday pneumonia. But, whatever the modifying effect of the influenza poison may have been, we are driven to ask ourselves whether it is probable, or even possible, that the local condition could be the sole cause of the grave constitutional disturbance, or whether the hyperæmia and slight hepatisation of the lung would not better fit into the theory of its being a consequential rather than an etiological incident in the history of the disease; whether, in short, such cases are not a strong argument in favour of the specificity of pneumonia. In the last edition of "Quain's Dictionary of Medicine" Dr. T. Henry Green tersely states: "The old view that pneumonia is a simple local inflammation, accompanied by a symptomatic pyrexia, would appear to be no longer tenable; and although a complete pathology of the disease must await further investigations, the present position of our knowledge makes it in the highest degree probable that it is a general infective disease closely allied to the acute specific fevers, of which the lung inflammation is the characteristic local lesion. What is known of the etiology of the disease, the absence of any constant relation between the local inflammation and the intensity of the fever, the 'typical' course of the fever, the fact that the disease is incapable of being produced by mechanical or chemical injuries to the lung; and, lastly, the discovery of peculiar micro-organisms all tend to support this view of its pathology."

Influenza is widely recognised as one of the specific diseases which, in all probability, owes its existence in great measure to microbic action. The toxines secreted by its microbes are known to possess a special affinity for the nervous system. This is evidenced by the prostration, inertia, neurasthenia, hypochondriasis, and sometimes even melancholia which abide in greater or less degree as a legacy of the most ordinary attack. Pneumonia behaves in many respects like the other acute specific fevers, and has been demonstrated to possess micro-organisms which are capable, when inoculated into certain animals under favourable circumstances, of setting up, if not the true disease, at least a septicæmia, of which a consolidated lung is the striking characteristic. Many of the prominent features of the everyday inflamed lung depend upon interference, from whatever cause, with the normal stability of the lung nerve-supply.

In the pneumonias, such as those above related, met with as complications of influenza, we have to deal with either (1) the ordinary disease, more or less modified by the previous systemic disturbance of the influenzal attack, and occurring as an acccidental sequela; or (2) an entirely different disease, bearing close analogies to the classical disorder, but owning a different cause, and entirely dependent for its manifestations on the pre-existence of influenza. If the former hypothesis be the true one, and it seems the more likely, then true pneumonia is capable of modifications in its symptomatology, and, assuming that the pneumococcus is a constant concomitant of the disease, whether causative or otherwise, an explanation of these anomalies may be suggested by the possible want of perfect concurrence of action of one class of microbe with another, either in the respiratory track, where the micro-organisms of both diseases are abundantly found, or in the blood itself; or else by the counteracting influence of the one set of resulting toxines with the other, producing, both directly and reflexly, results different from those to be expected from the unfettered action of either. If, on the other hand, the latter alternative be the right description of the condition, the new pneumonia which finds its parentage in influenza bears such a close resemblance to its better-known prototype that in all probability the pathological mechanism which causes the one is very closely allied to that which is responsible for the other. Further, if the predilection of both toxæmic secretions is the nerve centres, their disturbing effect in the neighbourhood of the fourth ventricle would go far to account for all the symptoms; not only such as are recognised as normal in an ordinary pneumonia, but also those which, however different from the common type, unmistakably proclaim that the usual course of an attack of influenza has become complicated by the occurrence of an inflamed lung.—*The Lancet, August* 26, 1895, *p.* 456.

38.—CHRONIC AND TUBERCULOUS PLEURISY.

By Alexander James, M.D., Physician to the Royal Infirmary.

[The following is an excerpt from Dr. James' paper.]

There is a connection between pleurisy and tubercular mischief which I wish now to refer to more particularly. It is that pleurisy may be the precedent, instead of the succedent, to tubercular disease. Thus, how often do we find that an individual who, at the age of 30 or 40 or 50 succumbs to tubercular phthisis, has informed us that five or ten, or a greater number of years before, he has suffered from one, or several, attacks of pleurisy. It is difficult to get precise data on this point; because, in the first place, it is difficult to follow up individual cases for the number of years required ; and, secondly, because it is impossible in such individuals to be certain that the attacks of pleurisy were not in reality secondary to tubercular lung disease which had either healed or remained latent for all those years.

Whilst admitting that in many of these instances the pleurisy has been secondary, I cannot but hold the opinion that in certain of them it has been the primary condition. Believing, as I do, that in tubercular disease the soil is more important than the germ, I would interpret the occurrence of a pleurisy in such cases as indicating a lowered nutritive power in the respiratory and other tissues, which renders them specially vulnerable to the tubercle organism. But I think that in certain cases of chronic pleurisy occurring in older people who have never ailed previously, we have specially valuable evidence on this point, and to these cases I wish now to direct attention.

[The author relates in full two such cases.]

In the first, as in all similar cases of chronic pleural effusion, one has a great difficulty in being sure as to whether or not the lung apex is free from phthisical disease. The marked increase in the fremitus and resonance, the loud hollow, and almost bronchial character of the breath sounds, and, above all, the crepitations, all suggest this. But these signs, and with them the tympanitic percussion note, can all be brought about by the pleuritic effusion ; and in this case they were so, for, as will be seen by-and-bye, the post-mortem revealed that the lung itself was absolutely free from phthisical disease. At the time, however, we contemplated the possibility of there being some tubercular apical disease.

In this case, the sequence I believe to have been, a left-sided pleurisy with effusion and formation of false membrane, little or no absorption of the fluid, and great increase correspondingly in the thickness of the false membrane. After some months,

pleurisy and effusion of the other lung, with similar want of absorption power as regards the effusion, and thickening of the false membrane. Eventually acute miliary tuberculosis, due to the weakened tissue nutritive power allowing the tubercle bacillus to take root, this miliary tuberculosis beginning first in the lowly vitalised tissue of the pleuritic membrane, and spreading thence to the lung and to the serous coverings of the liver, spleen, and kidneys.

I may state here that I am well aware that it might be argued that in this case the pleurisy had been tubercular from the commencement, and that its course and unfavourable termination had been due to its tubercular nature. But I would point out that this patient's family history and personal history were absolutely favourable. He gave absolutely no history of cough previous to his illness, and he had no cough when admitted, nor for several weeks afterwards. In time a cough developed, with muco-purulent expectoration, but this was simply bronchitic. The spit, examined repeatedly, never showed the tubercle bacillus, and it is interesting to notice that even a few days before his death, when we may be certain that miliary nodules were present in pleuritic adhesions and in lung, the most careful search failed to discover bacilli. The fluid removed from his chest at the repeated tappings, carefully examined, showed neither tubercle bacilli, pneumococci, nor indeed, any organisms whatever. Further, the post-mortem examination revealed no evidence of old-standing tubercular disease. I am, therefore, of opinion that the sequence of events was as has been stated.

But a further piece of evidence in favour of this view is that cases of pleurisy presenting symptoms similar to the one just given, and running a similar course, may be met with in which the post-mortem examination reveals no tubercle whatever, neither recent nor old ; of this the second case is a very fair example.

These two cases seem to me illustrative of a type of cases of chronic pleurisy which is not uncommon. It occurs in men about the age of 50. It is apt to run an unsatisfactory and unfavourable course, and usually terminates by miliary tuberculosis or catarrhal pneumonia after five or six months of illness. Such cases are seen from start to finish more in outside practice than in hospital. They not infrequently come into hospital, but they much less frequently die there ; for, feeling as weeks or months go by that they are making no progress, they desire to go home, and they are for long not so utterly feeble as absolutely to be precluded from taking the journey thither.

As already stated, much can be said as to whether or not these cases are tubercular from the beginning. As I have previously stated, I am inclined to think that many of them are

not; and I base my opinion on my interpretation of the clinical and pathological features which they present, and also upon the general principle that the powers for harm of the tubercle organism can only be exercised on tissue, the nutrition of which is below par. Be the explanation, however, what it may, the treatment in all these cases is alike, and to this I wish now to direct attention.

With such patients the ordinary treatment of pleurisy—rest, dry-dieting, counter-irritation by blisters or tincture of iodine, mercurial inunctions, cardiac tonics, diuretics, laxatives, &c.—is found to be of very little use. The pleuritic membrane seems to be so thick, and the chest so immobile, that reabsorption by bloodvessels and lymphatics cannot take place. One feels with such cases that if one could favour the performance of respiratory movements, as by allowing the patients to move about, to ascend stairs, or to take light dumbbell exercise, one could do good. But this plan of treatment, so useful when the quantity of fluid in the chest is small, is not only not beneficial, but positively injurious in those patients where the quantity of fluid is large, and in which feebleness and dyspnœa come to be prominent symptoms. The plans of treatment which may be tried therefore are :—

(1) Repeated tappings,—that is to say, the removal of small quantities of fluid (10 to 30 oz.) at intervals of four to seven days.

(2) Diluting the effusion. This may be done by withdrawing a certain quantity of fluid and allowing to flow into the pleural cavity a less quantity of warmed saline solution.

(3) Free drainage, as is practised in purulent effusions.

Let us now say a little about those plans in detail.

(1) *Repeated Tappings.*—This is the plan of which I have had most experience, as it is the one to which I always give the first trial. It imitates Nature as well as she can be imitated in the circumstances, for, the quantity of fluid removed at each tapping being small, there is no undue stretching or tearing of false membranes, and the tappings being at short intervals, the lung expansion obtained by one operation is retained and added to by the subsequent one. The quantity of fluid removed at each tapping should not be large, not above 25 or 30 oz. I think that with larger quantities loculi are more apt to be formed. Further, if a small aspirating needle be used, the patient does not not much dread the repetition of the operation.

This plan is often wonderfully successful. I have seen it act sufficiently in cases where I hardly expected it. Thus in the following case [of which the full details are given] where from the commencement I thought that free drainage would be required, it was markedly efficient.

(2) *Diluting the Effusion.*—This may be done by drawing off a quantity of fluid, say 10 or 15 oz., and allowing them to pass in a smaller quantity of saline solution, warmed to a temperature of about 100°, and of course rendered carefully aseptic ; repeating the operation every five or six days. It is conceivable that, in cases of delayed absorption, should the delay be due to the constitution of the fluid itself, this operation, repeated two or three times, would tend to be beneficial. Concerning it, all I can say is, that in my experience no harm has resulted from its employment ; but whether any subsequent improvement in the course of the malady was to be ascribed to the withdrawal of the pleuritic fluid or to the introduction of the saline solution, I do not at present know.

(3) *Free Drainage.*—This may be accomplished either by free incision, resecting a piece of rib or not, as may be deemed necessary, and the insertion of a tube, or else by puncturing the chest with a trocar or cannula, and inserting a piece of rubber drainage-tube through the cannula, then withdrawing the latter, leaving the drainage-tube in the opening. In either case the utmost care must be taken as regards antiseptics, cases of sero-fibrinous effusions being much more likely to go wrong than are empyemas. The patients for which this mode of treatment may be tried should only be those which have not been benefited by repeated tappings, in which it is certain that there are firm pleuritic adhesions, and in which the amount of fluid is not too great—not more than 40 or 50 oz.

I have seen several cases treated by drainage, but if I am unable to chronicle instances in which the results were so satisfactory as to make me recommend the procedure, I feel that for this the operation itself is not to be blamed. In most of them, the patients were past middle life, and the pleuritic process had lasted for over two months. In two of them, at least, there was already existent tubercular disease. When one reflects on the great probability that had these been cases of purulent instead of sero-fibrinous effusion, operative treatment would not have yielded any less unsatisfactory results, one feels entitled to anticipate from this operation distinctly better results in time.—*Edinburgh Medical Journal, September* 1895, *p.* 200.

39.—THE TREATMENT OF ADVANCED PHTHISIS.

By Edward O. Otis, M.D., Visiting Physician to the Free Home for Consumptives.

[The following remarks are taken from Dr. Otis's paper read before the Suffolk (U.S.) District Medical Society :]

(1) *The Sick Room.*—Patients in this stage of the disease have their lung capacity greatly reduced; the average of a dozen male patients I found to be 90 cubic inches, the normal average being 235·7. Consequently they need a large supply of oxygen, and it is of the first importance that they should be in an airy, well-ventilated room. If one is well covered in bed, or protected from a direct draught, the window can almost always be kept open even in the colder portions of the year. An open fire-place is very desirable, and sunlight a necessity; it is a tonic and antiseptic, and conduces to a cheerful mental condition. If we spent as much care and pains in giving our phthisical patients sunlight as we do creosote, I believe we should obtain as good results, and in a more agreeable manner.

(2) *Food.*—The feeding of these patients is a very difficult and delicate matter; more or less anorexia exists, the digestive powers are impaired, the appetite is capricious, and vomiting not infrequent. If the patient is able to be about, the three regular meals may be taken with supplementary lunches, such as milk and egg, koumiss, cream and hot water, bouillon, cocoa or coffee with bread and biscuit, a glass of porter, ale, or some light wine. Often no regular meals are possible, the digestion and appetite are so impaired, and then one must have recourse to frequent feeding with small amounts of easily digested or partially digested food. Milk, either plain or with some alkali —lime-water or soda-water, Vichy, Seltzer, Apollinaris; raw eggs with a little alcohol in some form, sherry, whisky, or port; carefully prepared soups; some of the various beef juices or extracts; peptonised foods. I have found the liquid peptonoids very serviceable; some of the malt preparations can also be used. Even with the most careful feeding various digestive disturbances will arise and persist which call for special treatment.

The most generally serviceable combination for these disturbances I have found to be the pepsin, bismuth, and charcoal tablet of Wyeth, which seems to meet a variety of unpleasant symptoms. For flatulence, aromatic spirits of ammonia, bismuth, bicarbonate of soda, tincture of cardamon, creosote, or naphthol. For pain after eating Dettweiler finds salicylate of bismuth of service. For the anorexia nothing seems to avail for any length of time; the various bitter tonics in various combinations for a while aid—gentian, cinchona, quassia, quinine, nux vomica, strychnia, malt. The mineral acids may also be combined with some of these.

It was almost a routine practice in my service at the Free Home for Consumptives to give all, except the extreme cases, malt with creosote, often combined with cod-liver oil when no fever existed, and it has seemed to me that this combination not

only assisted the appetite but the digestion as well. As to alcohol, I have used it freely in its various forms. Necessary, as a rule, in all stages of this disease, it is especially so in the advanced stage. I have found whisky, brandy, and the malt liquors the most generally serviceable.

(3) *Fever.*—The fever of advanced phthisis is generally the result of septic absorption from suppurating cavities or foci, and unless it produces unpleasant symptoms it is my experience that direct treatment is uncalled for, and is a menace to the already weakened heart. The inunction of guaiacol has been tried for this purpose, and it does produce a most marked and rapid deduction in temperature, but at the same time a depression which is often alarming, and the same danger exists to a less extent in the use of all the coal-tar antipyretics. The patient with fever should be kept in bed and free from excitement, given easily assimilable liquid nourishment, and from one-half to one hour before the expected rise of temperature a glass of Cognac and water or strong wine.

This is the plan pursued at the Sanitarium of Görbersdorf, and generally by the German specialists in this disease. An ice-bag over the heart is much used also by the Germans, but my limited experience is in accord with that of Wolff, that seldom does any definite result follow its use. If the fever has daily exacerbations, and is productive of much discomfort, we are obliged to have recourse to some direct antipyretic; antipyrine, thallin, antifebrin, salicylate of soda, or phenacetine may be used, but cautiously. Daremberg, with the characteristic French enthusiasm, says the treatment of the fever of tuberculosis was revolutionised when Knorr discovered antipyrine, but few of us, I think, would agree with him. The antithermic, he says, should be used to prevent the rise of temperature rather than to lower it after it has risen, and consequently should be given three or four hours before the expected rise or exacerbation. Of the various antipyretics mentioned perhaps phenacetine is the least harmful, and given in small doses as Yeo recommends, two or three grains in combination with hydrobromate of quinine two to four grains. When antipyrine is used, and there is an inclination to sweating, Székely advises the use of atropia or agaracin half an hour before the antipyrine is given. It is also advised to give it an hour before, or two hours after, eating. A preparation known as pyretine, the composition of which is unknown to me, and which was first called to my attention by my colleague, Dr. Fillebrown, has given me as good results, with as few evil effects, as any of the antipyretic group. Salicylic acid and salicylate of soda, so highly extolled by Jaccoud for the fever of phthisis, is especially useful, says Székely, in the fever of resorption (septic). It should be given, he says, in the late

evening, and, to avoid the annoying ringing in the ears, combined with ergot. My experience with it, however, has not been very satisfactory. If the fever is continuous no antipyretic is of much avail, but, if used, should be given before the fever has reached its height, otherwise sweating and vomiting may be produced.

(4) *Sweating.*—This is not an infrequent occurrence in advanced phthisis, and is another of the symptoms of the septic condition which prevails so largely, as I have said, in the latter days of the disease. Simple means will often serve to modify or avert this troublesome symptom ; a glass of milk with two or three teaspoonfuls of brandy at bedtime, together with gentle friction, either dry or with alcohol or vinegar and water. The drugs for this symptom are numerous : atropia, ergot, picrotoxine, oxide of zinc, camphoric acid, chloralose, extract of Coto bark (strongly recommended by Székely), and agaracin. Of all the antisudorifics I have used, agaracin has been the most satisfactory, given in doses of one-twelfth of a grain or larger ; as its action is slow it must be given early. Atropia is efficient, but its after-effects are not always agreeable, and, after my favourable experience with agaracin, I have abandoned its use.

(5) *Cough.*—No one symptom is so distressing to the patient and all about him as his cough ; it harasses him by day and renders his nights wretched. From the very nature of the conditions he must cough much, for the material secreted from the various diseased areas is constantly collecting, and must be expelled. This constant coughing keeps the mucous membranes of the upper air-passages in a state of continual irritation ; so that the poor sufferer is subjected to a two-fold stimulus to cough, one from below and the other from above. Cough he must sufficiently to expel the secretion ; but cough he does, as a rule, far more than is necessary to accomplish this. Now this unnecessary and useless coughing can, to a greater or less extent, be restrained by proper training. One must establish a coughing method, and learn how to cough with effect and economy of strength, and to restrain the dry, unproductive cough. Daremberg speaks of taking lunch at Falkenstein with Dettweiller and his 150 phthisical patients, and not hearing a cough ten times in three-quarters of an hour. In expressing his wonder at so little coughing among so many tuberculous patients, Dettweiler replied that he taught his patients not to cough by telling them that when they itched in public they did not scratch, and that cough without expectoration was a scratching of the throat which itched, and, therefore, they should not scratch the throat in public.

The medicinal treatment of the cough, and in this stage it must be treated medicinally, includes the whole materia medica

pretty nearly ; but opium in some form is the one drug upon which we must chiefly rely. As some one has said, "Without opium the treatment of phthisis would be impossible." My experience coincides with that of Wolff, that codeia is the most useful form of this drug. It does not disturb the stomach as other forms of opium often do, and it quiets the cough. After a trial of a variety of cough preparations, I obtained the most satisfactory results when almost every patient in the hospital was put upon this drug. I used a watery solution in the proportion of 1 to 100. It can be given frequently, and a couple of teaspoonfuls of the solution at night will generally produce a good night's rest.

In most cases of advanced phthisis there is an irritable condition of the mucous membranes of the upper air-passages, the pharynx and larynx, which, from the slightest cause, produces a cough of irritation. Local applications will aid us here. If the cough is caused by laryngeal irritation, sipping ice-water will sometimes calm it. If the pharynx and larynx are in a chronic irritative catarrhal condition, we can first clean the surfaces by some alkaline solution like Dobell's, or warm borax and water, and then make such applications as cocaine, menthol, insufflations of morphia, iodoform and starch, inhalations of balsamic vapours, or a solution of nitrate of silver. Almost every phthisical patient has a paroxysm of coughing in the morning, on arising, if he is well enough to get up, or upon taking food. This is a cough of expectoration, and all we can do is to make the paroxysm as short, easy, and effectual as posssible. A glass of some warm alkaline drink, Apollinaris, soda, Vichy, or Seltzer water, with a little alcohol in it, brandy or rum ; or a glass of warm milk and water, with a little bicarbonate of soda and common salt in it, will often accomplish this.

(6) *Vomiting.*—This is an annoying symptom after taking food ; and the cause, as given by Yeo, and which seems to be reasonable, is the increased secretion in the air-passages, already in a catarrhal state, caused by the stimulus of the circulation by the food and the rapid absorption of fluid from the surface of the stomach. Acting on this theory, he gives about half an hour before a meal, a glass of hot milk with some alkaline water (Ems, Seltzer, or the like), with a tablespoonful of brandy or whisky, and so favours free expectoration, just as previously mentioned in the morning paroxysm of coughing. The meal should consist of as little fluid as possible ; and immediately after it a few grains of pepsin, with a few drops of hydrochloric acid, is given. I have followed this plan partially with more or less success. Peter, quoted by Yeo, ascribes vomiting to the irritation of the gastric portion of the vagus by the contact of

food, and just before the meal he gives a rapidly absorbable sedative such as a few drops of laudanum in a teaspoonful of water, and immediately afterwards three drops of hydrochloric acid in water. If the vomiting seems to be caused by laryngeal irritation, local applications of astringents and anodynes can be used. If digestive disturbances seem to be the cause of it, antifermentatives such as carbolic acid, creosote, naphthol, charcoal, iced lime-water, Vichy, soda-water and the like, may prevent it. When it is an oft-recurring symptom, perfect rest in bed and frequent feeding with a small amount of easily digestible nourishment, such as liquid peptonoids or peptonised milk, will aid greatly.

(7) *Pains.*—The phthisical patient in this stage complains of many and various pains and aches—pleuritic, painful affections of the intercostal nerves; pains in the back, joints, abdomen, muscles, etc. The variety of local applications is great, and one after another has often to be tried: Tincture of iodine; dry heat by means of dry cloths and the hot-water bag; belladonna, in liniment or plaster; chloroform; and, what I have found perhaps as efficacious as anything, equal parts of guiacol and glycerine painted over the painful area. If the pain is pleuritic and aggravated by respiration, and situated at the base of the chest, strapping with adhesive plaster, diagonally applied, as first suggested by Roberts, restrains the respiratory movement, and consequently stops the pain. If the pleuritic pain is at the upper part of the chest, one must have recourse to some counter-irritation.

(8) *Diarrhœa.*—This is either septic, or due to gastric or intestinal irritation, or perhaps most frequently in this stage, is the result of tubercular ulceration. If septic, salicylic acid or naphthol may be used. When the diarrhœa is not dependent upon intestinal ulceration, milk and lime-water, and tannate of bismuth are serviceable. If tubercular ulceration exists we can only hope to mitigate it, and opium with bismuth and some astringent have served me the best. Yeo and Székely recommend highly extract of Coto bark; a solution of nitrate of silver can also be used per rectum. The patient must be kept quiet in bed and given some partially predigested food like liquid peptonoids or peptonised milk.

(9) *Hemorrhage.*—Hæmoptysis occurs in this stage as in the earlier ones, and, in the main, requires the same treatment—perfect rest in bed, an ice-bag over the heart region, and opium in the form of morphia, or of codeia, with the addition of ergot subcutaneously if indicated. I believe that in the hæmoptysis of this stage more or less alcohol is of benefit, contrary to the common usage in the treatment of this symptom. Cold liquid food is always recommended, and ice. Daremberg mentions

"a very useful application" which is new to me, ice to the testicles or vulva; he applies it twice a day, and keeps it in contact with the skin about five minutes. He mentions the case of a consumptive who always carried a box of ice with him when he travelled; he had so much confidence in this practice. In the profuse, sudden, and alarming attacks of hæmoptysis in advanced cavity cases, Yeo recommends frozen compresses as "one of our best resources."—*Boston Medical and Surgical Journal*, *June* 20, 1895, *p.* 609.

DISEASES OF THE ORGANS OF DIGESTION.

40.—THE CONSERVATIVE USE OF THE STOMACH-TUBE IN THE TREATMENT OF GASTRIC DISEASES.

By J. M. G. Carter, M.D., Sc.D., Ph.D., Professor of Preventive and Clinical Medicine, College of Physicians and Surgeons, Chicago.

The author thus concludes a paper on this subject:—I should advise the use of the tube for the purpose of lavage or washing out the stomach for the following six objects: 1, to remove undigested food and foreign matters; 2, to cleanse the mucous membrane from the action of medicines; 3, to check hemorrhage; 4, to give antiseptic douchings; 5, for sedative purposes; 6, for general tonic effects upon the stomach, mucous membrane, and parietes.

(1.) The removal of undigested foods may become necessary in indigestion, functional dyspepsia, dilatation, cancer, and pyloric stenosis. In such cases nothing can be done until the stomach has been relieved of the offending matter. Frequently in some of these cases vomiting can not easily be induced, and in others it is not to be encouraged. It is a common experience that no treatment gives such complete temporary relief in functional dyspepsia, dilatation, cancer, and stenosis as lavage. This removes the undigested remnants of food, fermentative and putrefactive products, and exercises a beneficent tonic influence upon the gastric mucous membrane.

(2.) In atrophy, chronic gastritis, and also in functional dyspepsia, as in other neuroses, washing the tenacious mucus from the membrane gives a surface by which medicines are more readily absorbed. There is no doubt that tardy recoveries

or entire failures in the treatment of some neuroses, including atonic or nervous dyspepsia, are due in part to the failure of the gastric mucous membrane to absorb the medicines prescribed. This occurs often where the absorptive function is not materially impaired. Such cases can be explained by supposing that the tenacious mucus on the mucous membrane interferes with the process of absorption. The removal of this mucus will facilitate the action of the medicines which are given.

(3.) The application of cold is a common method of controlling hemorrhage. Ice-cold water can be applied to the mucous membrane of the stomach in hæmatemesis in two ways. First, the patient may be required to drink ice water and swallow bits of ice. The quantity which can be thus used is limited. Second, it frequently happens that hemorrhages occur in ulcer and other pathologic conditions under circumstances which do not forbid the use of the stomach-tube, and where a prolonged application of cold to the gastric surface is desirable. In such conditions one is justified in applying a continuous douching by withdrawing the water after it has been in the stomach four or five minutes and reintroducing a supply of ice-cold water to be again withdrawn in the same manner. This process may be continued as long as necessary, if no untoward symptoms arise from the prolonged use of cold. In ulcer, cancer, and rupture of vessels of considerable size, danger may attend the expression method of emptying the stomach ; hence it is wise to use an aspirator or exhausting bulb or syringe to remove the water.

(4.) One of the most simple and advantageous uses of the tube is for the purpose of removing the products of fermentation and putrefaction. In all diseases where fermentation occurs, as in functional dyspepsia, certain other neuroses, dilatation, chronic gastritis, and cancer of the stomach, the gases and other abnormal products of faulty digestion act as irritants, and nothing relieves the patient so quickly and completely as lavage. In many of these cases, especially nervous dyspepsia and gastrectasis, and often in chronic gastritis, lavage not only serves to give temporary relief, but is also an excellent therapeutic agent in accomplishing a permanent cure.

(5.) Perhaps no class of diseases of the stomach is so generally benefited by lavage as the neuroses. Functional dyspepsia has already been mentioned. Gastralgia, nervous eructation, hypersecretion, the various conditions accompanying neurasthenia and nervous vomiting are frequently thus relieved, the depraved condition (if one exists) which allows these states to arise removed, and a gentle tonic influence imparted to the gastric mucous membrane which is spread until it helps to remove the

cause of the neurosis. The impression made upon the general nervous system, the quick response of the sympathetic system, the increase in the circulation and consequently the improved general metabolism are, without doubt, some of the most important effects of washing out the stomach in these cases. The readiest means of relieving obstinate hiccough, heartburn, and other symptoms of gastric irritation may often be found in the use of lavage. No one who has had large experience in such cases can doubt the beneficent influences of lavage. Nevertheless, there are some neurotics who can not submit to the lavage treatment on account of syncopic or other distressing symptoms.

(6.) It can not be doubted that cold or tepid bathing, and sometimes hot bathing, produces general tonic effects. Similar effects are often observed in the lavage treatment of the stomach—bathing or washing that viscus. In atonic conditions of the muscular coat of the stomach, in anæmic conditions of the mucous membrane, and in deficient gastric secretion, there are few remedial agents which will produce better results than systematic lavage. Auto-lavage, or the use of the tube by the patient is not to be encouraged, except in the few cases where definite instructions with proper cautions and restrictions will be observed.

A review of the foregoing study of our subject reminds us that while the field for lavage is large, and its position as a therapeutic measure established, it requires skill and care to use it always for good and not for evil. There are many conditions, idiosyncrasies, and circumstances which will forbid its use. Some of these can be overcome, some can not. Conservatism should mark the physician's course here, as in most departments of medical practice.—*Journal of the American Medical Association, June* 15, 1895, *p.* 911.

41.—MORNING DIARRHŒA.

By Francis Delafield, M.D., New York.

Definition.—I employ the term "Morning Diarrhœa," to designate a group of patients who, either continuously or at intervals, have, during the morning hours, one or more loose passages from the bowels composed of fæcal matter and of fluid.

Lesions.—As the condition is not a fatal one we have to judge of the probable condition of the colon from the symptoms. The large quantity of fluid in the discharges indicates a considerable exudation of serum from the blood vessels of the

colon. The occasional presence of mucus denotes a morbid change in the functions of the mucus-producing glands. The complete change in the character of the movements, which in some patients occur within twenty-four hours, would seem to show that there are no structural changes in the colon, while, on the other hand, the persistence of the diarrhœa in some cases points to the existence of a productive inflammation.

Etiology.—The disease is seen in New York in a large number of persons of all classes. I have not been able to determine any satisfactory reasons for its occurrence.

The Diarrhœa.—The discharges from the bowels are of large size, of brownish colour, and composed of fluid mixed with fragments of fæcal matter. Their odour is often offensive. The discharges come with a rush and are often accompanied by the escape of wind. In the more severe cases there is also from time to time a discharge of mucus. The passages are painless, or are preceded by colicky pains.

Varieties.—(1) The simplest cases are those in which there is only one loose movement every morning after breakfast. This may go on continuously month after month, and year after year. Or there may be intervals of formed passages, or of constipation. There are no disturbances of the general health. Most of the patients do not seek for medical advice. (2) Much more uncomfortable is the condition of those patients who, instead of one loose movement after breakfast have several such movements. This condition also may continue for years, or may only occur from time to time. These patients are liable to a number of additional symptoms. In some of them there is a well-marked feeling of exhaustion after the passages. The exhaustion is so great that the patients are good for nothing all the morning, and it is not until the afternoon that they are able to attend to work or business. In others the colicky pains before the passages are very troublesome. The patients get up every morning with the knowledge that after breakfast they will have to go to the water-closet a number of times and in addition will have to suffer more or less pain. Instead of the colicky pains there may be a fixed pain referred almost constantly to some one part of the colon. This pain is so severe and so constant that it may lead to the suspicion of cancer, or of appendicitis. Mental and nervous disturbances are associated with morning diarrhœa in two entirely different ways. First, there is a nervous condition caused by the diarrhœa, and which disappears when the diarrhœa is cured. The condition is that of apprehension, of fear. The fear may be of cancer, of peritonitis, of appendicitis, or of some other definite danger, or it may only be the feeling of fear without any special object. Second, there is a nervous condition which

is not caused by the diarrhœa, but which makes the diarrhœa much worse. It is an irritability belonging to the individual, of such a character that any anxiety, or trouble, or fatigue will bring on the diarrhœa. In some patients the treatment of the diarrhœa is rendered hopeless by the frequent relapses due entirely to such a nervous condition. (3) As the disease becomes more marked the loose passages occur earlier in the morning. The patients wake up at four, five, or six o'clock in the morning with the feeling of an impending movement of the bowels. Then they go on to have several loose movements both before breakfast and after. The exhaustion and discomfort of the patients are very much increased by this early occurrence of the diarrhœa. (4) In some patients there is added after a time a sort of relation between the stomach and colon of such a character that whenever food is taken into the stomach there is a movement from the bowels. This is very annoying, for the patients are obliged suddenly to leave the table during the course of every meal. (5) The occasional presence of considerable mucus in the discharges belongs to the cases which last the longest and are the hardest to cure.

Treatment.—If the disease occurs in women, before beginning any medical treatment it is important to have cured any lacerations of the perineum or the cervix, displacements of the uterus, or disease of the Fallopian tubes which may exist. The methods of treatment which are ordinarily employed are:—(1) *Change of climate.*—The effects of this are often very satisfactory and in the milder cases very prompt. A person who has a morning diarrhœa for months may leave New York in the afternoon and the next morning begin to have formed passages. Unfortunately, a return to the city may be followed by a return of the diarrhœa. In the more severe cases a prolonged residence in a dry inland climate may effect a cure. (2) *Diet.*—The plans of diet usually followed are:—(*a*) an exclusive diet of milk; (*b*) an exclusive diet of beef and hot water; (*c*) a diet composed of milk and meat alone; (*d*) a diet from which only the sugars and starches are excluded. As regards the effects of treatment by diet we find that some patients are cured, some are benefited for a time, in some there is no effect at all, some get worse. (3) In a small number of cases the diarrhœa can be cured by daily lavage of the stomach. (4) *Drugs.*—As a rule, the number of the passages can be checked for a moderate length of time by the preparations of opium. The improvement only lasts while the opium is taken, and it is evident that the use of this drug ought not to be continued for any length of time. The subnitrate of bismuth, the subgallate of bismuth and beta naphthol bismuth are said to give good results. I have not been very fortunate with

them. Salol and naphthalin answer well in some cases, but have absolutely no effect in others. Arsenic, quinine, ipecac, belladonna, and cannabis are all very useful drugs. The drug which has given me the best results is castor oil in doses of from five to ten drops.—*Medical Record, May* 11, 1895, *p.* 578.

42.—ON THE VALUE OF BICHROMATE OF POTASH IN CERTAIN AFFECTIONS OF THE STOMACH.

By J. B. Bradbury, M.D. Cantab., F.R.C.P. Lond., Downing Professor of Medicine in the University of Cambridge; Physician to Addenbrooke's Hospital.

[Prof. Bradbury has used gelatine capsules (Duncan, Flockhart & Co., Edinburgh) of this agent, each containing $\frac{1}{10}$ grain. He records 7 cases treated in this way, and comments upon them.]

Case 1.—In February a parlour-maid had an acute attack of gastralgia, which neither bismuth, morphia, nor iron, with the most careful dieting, would alleviate. She had had many similar attacks before, and had always been relieved by a powder containing bismuth, opium, magnesia, and soda, or by iron. The pain was so severe that she was compelled to give up her work; it came on usually directly after eating, occasionally before, and was relieved by vomiting. She was slightly anæmic, but the bowels and catamenia were fairly regular. I determined to try the capsules, and after taking one three times a day for two or three days on an empty stomach she became much better, and continued to improve. She has kept quite well ever since. Altogether she took two boxes of the capsules, each box containing about twelve.

Case 2.—A man, aged 30, married, was admitted into Addenbrooke's Hospital, Cambridge, on April 3 of this year, suffering from attacks of vomiting after food. Generally the attacks came on many hours (from ten to twelve) after a meal, and most often occurred in the early morning. No pain was felt after food had been taken, but occasionally bright blood was found in the vomited matters. The Sunday before admission he brought up two table-spoonfuls of blood in the vomit. He had been troubled with these attacks of sickness for three years, and in consequence had been almost constantly an in or out-patient at the hospital. Relief was obtained for a time, but the attacks quickly recurred. The patient was somewhat wasted, but there was no evidence of any other disease. He was of

temperate habits. He was dieted on beef-tea and milk, and the day after admission was given one capsule of potassium bichromate (one-tenth of a grain) three times a day. He vomited on each occasion an hour after taking the first three capsules, and once four days afterwards. On April 10, one week after admission, he was allowed bread, on the 13th fish, and on the 17th pudding. On April 28 he left the hospital greatly improved in every respect, having gained weight and the power to take solid food.

Case 3.—A woman, aged 46, was admitted to Addenbrooke's Hospital, on April 17 last, suffering from pain in the stomach and vomiting. These symptoms commenced seven years ago, and had been more or less present ever since. She had lost flesh, and occasionally had brought up dark blood in the vomit. She was the mother of eighteen children, of whom ten were living, and there was a pronounced family history of phthisis on the father's side. When admitted the patient presented a somewhat wasted appearance ; the gastric pain was constant, being worse after food, and vomiting occurred after every meal. There was tenderness in the epigastrium and right hypochondrium, but no tumour was felt. The tongue was slightly coated, and the appetite poor ; the bowels were regular. She was put on a milk and beef-tea diet, but no improvement occurred, and three days afterwards was ordered one potassium bichromate capsule (containing one-tenth of a grain) three times a day, with an occasional dose of an elixir of cascara sagrada. During the night she vomited once, but the next day she was free from pain. The improvement continued. On April 28, eight days after commencing to take the capsules, fish was added to her diet, and on May 5 full diet was allowed. This, however, produced retching and abdominal discomfort, and it was therefore found necessary to replace the meat by fish. Subsequently the patient gradually improved, and was finally discharged on May 11. Reporting herself at the hospital two weeks later, she stated that the improvement had continued, and that she was practically well.

Case 4.—A man, aged 59, was admitted into Addenbrooke's Hospital, on April 6 last, complaining of a constant gnawing pain in the epigastrium, and occasionally shooting into the loins. This first commenced about a month before Christmas, and had continued ever since. It was sometimes worse about an hour after food, but there was no definite relation to meals. The patient stated that he had lost two stone since Christmas ; he had never vomited, and no family history of cancer was obtained. The bowels were constipated. On examination of the abdomen the superficial veins were found distended ; an ill-defined roundish mass, slightly tender, was felt in the region of the

umbilicus, but no enlargement of the liver or spleen could be detected. A trace of albumin was found in the urine. On admission he was put on a milk and beef-tea diet, a purgative and a simple enema being also given. No improvement occurred. On April 10 potassium bichromate capsules, one three times a day, were given. Improvement almost immediately followed; the pain abated, the patient gained weight, and was soon discharged, being able to take solid food with impunity.

Case 5.—A young woman, aged 18, first consulted me on May 14, 1892. Her symptoms were pain after eating and extending between the shoulders, occasional vomiting, but no hæmatemesis. She was afraid to eat on account of the pain. The bowels were very costive. The catamenia were regular. She had not been well for two years. There was slight tenderness in the epigastric region. These symptoms were relieved by a mixture containing bismuth, morphia, and magnesia, and by careful dieting. Later in the year she became anæmic and the catamenia irregular, and she was successfully treated with iron pills. In August, 1894, she had a recurrence of the pain, vomiting, constipation, and tenderness in the epigastrium, and the symptoms were again relieved by a bismuth and morphia mixture. The catamenia were, however, irregular, often not reappearing for seven or eight weeks. On March 23, 1895, she came to me again with the same symptoms, and I gave her the bichromate capsules. I did not see her again till May 18, when she informed me that the capsules had stopped the vomiting, and that she had had neither sickness nor pain for about seven weeks. Her appetite was better, the bowels more regular, and she felt stronger. She is still continuing to take the capsules.

The next two cases were not successful.

Case 6.—A man, aged about 50, consulted me in December, 1889, for pain in the stomach, or rather a feeling of rawness and soreness. The bowels were regular and the tongue a little coated. He was benefited by a mixture containing bismuth and belladonna. In May and June of the following year the pain, rawness, and soreness returned, and sometimes the pain was very acute. Morphia and bismuth gave him some relief, but a good holiday did him more good than anything. He did not consult me again till April, 1895, when he had the same symptoms as before. His appetite was fair, but he was afraid to eat on account of the pain. I prescribed the bichromate of potash capsules for him, and although he tried them for a fortnight he received no relief. I then placed him upon a mixture containing bismuth, sulpho-carbolate of soda, and Fowler's solution; but I have not seen him since, and do not, therefore, know the result.

Case 7.—The patient was a woman past the menopause, who had had at times for years severe attacks of gastralgia, which a powder containing bismuth, magnesia, soda, and compound powder of opium usually relieved. I gave her the capsules, and I thought at first they were benefiting her; but she had a most excruciating attack of pain, and I was obliged to place her upon a strict diet and a bismuth, morphia, and magnesia mixture.

The cases are few in number, but they show the extent of the action of potassium bichromate in the treatment of gastric conditions. That this salt is beneficial in many cases of dyspepsia can no longer be doubted. Both Vulpian and Fraser have described successful cases, and Hare, of Philadelphia, also mentions its value. Vulpian's cases exhibited a variety of symptoms, but were all of a more or less chronic character. In some patients pain was a prominent symptom, in others there was none; in some no tenderness existed, others, on the contrary, presented tenderness more or less severe and localised; anorexia was not infrequently absent, and in some blood was found in the vomit. Other cases of his had decided dilatation, and a few were probably cases of malignant disease. In some of the last-named cases the relief was so marked that he thought it was probably due to a specific effect, and consequently he gave the drug in cases of uterine cancer, but without benefit. He thinks, however, that the drug is most useful in those cases of dyspepsia which simulate cancer. Like myself, he does not appear to have been always successful, for in speaking of one case he says, in parenthesis: "I speak only of those cases where I obtained great amelioration." Fraser's cases are very similar to those of Vulpian and my own. They presented very dissimilar symptoms, or perhaps I ought to say combinations of symptoms, but nearly all of them might be classed under what is termed "chronic dyspepsia." Ten of his cases were diagnosed as gastric ulcer, but in all the cases more or less relief immediately followed the potassium bichromate treatment. In cases of anæmia the gastric disturbance was relieved or cured, but the drug had no effect upon the condition of the blood. When iron was administered, however, the amount of hæmoglobin and number of corpuscles very quickly increased, and the patient soon became well. The salt does not appear to possess any great hæmostatic power, and it is practically useless in the treatment of ordinary hæmatemesis. Although the therapeutic value of potassium bichromate is thus evidenced, a rational explanation of its action—that is, its pharmacology—is by no means easy. At the present time numerous cases of poisoning by this salt, of a more or less acute character, are on record, and many experiments (by Orfila, Vulpian, and others) have been made to

determine its pharmacological action, but it is peculiarly difficult to draw conclusions from the administration of toxic doses as to the action of minute doses administered therapeutically. Shortly, potassium bichromate in large doses acts upon the nervous system and secreting structures. Administered by the mouth, subcutaneously, or intravenously, it almost invariably produces vomiting, and often diarrhœa. After death, congestion and ecchymosis of the alimentary tract are usually found. It is, in fact, an irritant poison. As it produces such profound changes when given in toxic doses, it is not improbable that in smaller doses it may act as a stimulant to the secretory cells. In all cases of chronic dyspepsia the activity of the gastric cells is modified; indeed, it is usually this modified condition which keeps up the dyspepsia. The stomach is not doing its work, the blood-supply is less active, the structure of the mucosa is changed, and the active cells are perhaps degenerated, and are further degenerating. What we wish to do after removing the cause, if this still exists, is to bring back the cells to a normal condition. Sometimes this can be done, but often the pathological changes are such as to make it impossible. In such cases, however, we may alleviate the condition, and by careful dieting the patient may continue in apparent health. It is very probable that potassium bichromate acts by modifying this nutritive activity of the various gastric cells, at the same time increasing the blood-supply and producing a more normal digestion. Vulpian thinks it acts on the terminations of the nerves in the mucous membrane, and Fraser also thinks that this may be a factor in its therapeutic action. It has been shown to possess considerable antiseptic power, but it is but slightly astringent. Thus Fraser found a solution of albumin, rendered hazy by a 0·01 per cent. (1 in 10,000) solution of silver nitrate, was not affected by a 3 per cent. solution of potassium bichromate. Nevertheless, it must not be forgotten that potassium bichromate is an acid salt with a slight acid reaction, and to this fact part of its pharmacological effect may be due. On the whole, I think we must include this salt under the head of gastric tonics or stomachics. The dose, as I have already indicated, is one-tenth of a grain (one-eighth to one-twelfth) on an empty stomach. It may be given in pill or in solution, with a flavouring agent, or, as I prefer, in capsules. Of contra-indications to its use I know none. Gergens produced nephritis experimentally (degeneration of renal epithelium, albumin, and tube casts in urine), but this only after large doses. Excitation, followed by depression of the nervous system, also occurs after large doses, but although potassium bichromate has been administered therapeutically for some time, no such ill effects have been produced.—*The Lancet, September* 14, 1895, *p.* 671.

43.—THE PROBLEM OF TYPHLITIS.

By Sydney Coupland, M.D., F.R.C.P., Physician to the Middlesex Hospital.

[After drawing attention to the increased pathological knowledge of the morbid anatomy of the vermiform appendix and to the value of surgical treatment at least in certain cases, the author relates the clinical features of an unmistakable attack of typhlitis and also of one of perforative appendicitis. He proceeds as follows :]

In the first place it may be useful to inquire whether apart from the alternative hypothesis, the belief in typhlitis as a substantive disorder—such a belief, for instance, as was currently held fifteen or twenty years ago, which was imparted to us in our studentship, and has been transmitted by us to our own pupils—whether this teaching has any substantial basis in fact. It has no support in morbid anatomy ; but then it may be urged that no opportunity has ever been afforded to apply this crucial test. The reasons advanced in its favour passed unquestioned, and appeared to be unquestionable. The concordance between the position of the cæcum and the site of the inflammatory disturbance, the form of the swelling so suggestive of that of the distended viscus, and the presumed liability of retained fæcal matter to irritate and inflame the mucous membrane, were surely all-sufficient reasons for the prevailing faith. Yet the grounds for the belief in a "typhlitis stercoralis" are in point of fact unsubstantial. The cæcum is physiologically adapted for the retention of its contents ; indeed there is reason to believe that digestion of a kind is carried on in this *cul-de-sac*, where the semi-liquid ileal products accumulate and inspissate. That the cæcum, like other portions of the intestinal tract can be inflamed by the agency of specific poisons, such as that of enteric fever, or a mineral poison like corrosive sublimate, does not imply any special proclivity to catarrh of this part of the large bowel ; and although one cannot deny the possibility of the formation of irritants in the fermenting contents of the intestine, it is difficult to limit their operation to the cæcum alone. On the other hand, the inadequacy of simple accumulation of fæces to excite typhlitis is proved by the fact that a fæcal tumour formed in the cæcum can, under the continual use of large enemata, be gradually dislodged and traced *de die in diem* in its passage along the colon ; and that in such a case, apart from the swelling, there has never been any inclination of typhlitis. Further, where such accumulation is due to a permanent obstruction—*e.g.*, cancerous stricture of the sigmoid, unrelieved by colotomy—and the distended and hypertrophied

colon becomes filled with foul material of semi-fluid consistence, the cæcum, which suffers the most from this distension, may become ulcerated and even perforated, without any precursory signs of so-called typhlitis. It is fair to point out that the condition referred to is rather necrotic than inflammatory, being caused by the mechanical effort of long-continued pressure on the walls of the cæcum ; yet it is in such conditions surely if at any time that the decomposing intestinal contents might act as an irritant.

A prominent feature in the history of typhlitis is the liability to relapse. There are, so far as I am aware, no positive data to determine the frequency with which this occurs. It is probably more common than one's own experience would suggest, since slight and abortive attacks occurring in early life may readily pass unnoticed, or be referred to other causes. The knowledge of this tendency must, however, be always present to the mind when dealing with typhlitis. It is shown in the injunctions that are given to the convalescent, who has henceforth to live by rule, to guard against indiscretions in diet, to be mindful of the regulation of his bowels, to avoid violent exertion, physical fatigue, and exposure to chill. These restrictions must weigh heavily on the young and active, yet most of us can recall cases where their disregard has imperilled or even sacrificed life. If relapses can be avoided by such regimen, surely it might be thought that the former teaching of the cæcal origin of the disease was justified ; for such precautions would seem to be both rational and necessary in the view that the cæcum in such subjects was a *locus minoris resistentiæ*, liable to be provoked to inflammation on the slightest exposure to irritation or catarrhal influences. Nor does the rejection of the previous conception of typhilitis involve the abandonment of such wholesome measures of precaution. If the appendix alone is the source of all the symptoms it may well be that the wisest course to avoid its recurrent inflammation is to regard these precepts, but the problem is to determine whether it would not be wiser still to anticipate the relapse by radical removal of the offending organ.

For there is something more than a possibility that the phenomena of typhilits are all explicable by inflammation and ulceration of the appendix. The term "appendicitis," in spite of its barbarity, must be accepted as the equivalent of "typhlitis," and the whole current of our thought upon the latter must start from the central conception denoted by the former. The remarkable richness in lymphoid tissue of the submucosa of the appendix was dwelt on by Mr. Bland Sutton, who, if I mistake not, was the first to draw a comparison between this organ and the tonsil—a comparison which is a

once suggestive and satisfactory. It implies that there may be other causes at work to excite inflammatory swelling of this lymphatic tissue than merely local irritation, and that just as certain individuals have a proclivity to tonsillitis, so there are others who are disposed to appendicitis. This does not preclude the possibility of catarrhal conditions exciting the limphoid inflammation and ulceration; for although we may doubt the occurrence of catarrhal inflammation of the cæcum itself, the same lesion of the appendix is more readily conceived as originating from comparatively slight causes, amongst which may be mentioned the impaction of fæcal matter in its narrow channel. I have stated that in many cases the determining cause of an attack of typhlitis can be traced to a chill, and there seems nothing incongruous in the notion that such exposure, which may admittedly excite an intestinal catarrh, should not more readily influence this susceptible part of the tract. But whether chill (always somewhat of a *deus ex machinâ* in etiology) be the efficient cause or not, it may at least be granted that the appendix cæci can be inflamed and ulcerated without any relation to general intestinal conditions. The example I have cited of perforation of the appendix suffices for this. That inflammation of the appendix is adequate to produce all the symptoms of typhilitis is, I think, certain, but with this reservation—that the best-marked cases, those which most conform to the classical type of typhlitis, are really cases of perityphilitis secondary to the appendix lesion. Thus, then, the swelling and dulness which were wont to be referred in the main to a distended cæcum, probably owe their origin to localised peritonitis surrounding the cæcum and its appendix. Hence a further inference—namely, that in all such cases there is something more than simple inflammation of the appendix—in all probability ulceration as well.

Yet it may be said that if one refers all cases of so-called typhlitis to a severe degree of inflammation of the appendix, there ought to be other recognisable types in which the lesion is of milder intensity. This is actually so, for often a case will be characterised only by an aching pain in the right iliac region, associated with constipation or perhaps with vomiting and diarrhœa, but with little or no pyrexia and no local swelling—a case in which two or three days' rest and low diet suffice for cure. Here there is no proof of any perityphlitis at all, and none of typhlitis as ordinarily understood; but the characters of the attack are quite consistent with simple appendicitis. Moreover, these mild attacks—some of them possibly of the nature of "appendicular colic"—are often recurrent, and in one of these relapses the signs and symptoms of prominent typhlitis may appear.

So far there is little direct evidence that the appendix is the root of these inflammatory complications; but occasionally it happens that typhlitis is followed by the persistence of a definite palpable tumour of the shape and size of a thickened appendix, and on exploration a swollen and ulcerated appendix is found and removed. From such cases to those where, either in the primary attack or in a relapse, the pyrexia does not abate, but becomes hectic, the swelling increases, and the signs of suppuration supervene—the transition is marked. Perityphlitic abscess has always been recognised as the most formidable sequel of typhlitis.

Another but less frequent sequel of "typhlitis" is the formation of adhesions between the appendix and the mesentery or an epiploic appendage, with the result that a loop is formed which may ultimately form the cause of an internal strangulation of the intestine.

It is with some reluctance that one parts with a notion of stercoral typhlitis, and, if it were possible, one might wish to retain it in all its simplicity to explain some of these cases. That conception enabled one to have a definite aim and object in treatment, and its removal has, it seems to me, added to our difficulties in this respect. For I do not see how it is possible to retain it for some cases and reject it for others. There is no definite sign which would enable us to distinguish the one from the other. It might be thought that the history of the case would point to a way to differentiate between a true typhlitis and an appendicitis. Several years ago a gentleman well known to me, then about 65 years of age, was attacked with typhlitis. There was a clear history of constipation, and all the characteristic features of the disease were present. Suppuration followed, and eventually the abscess opened into the rectum, and my friend—now upwards of 80 years of age—has enjoyed the best of health ever since. At the time of his illness there seemed no doubt that the constipation had excited typhlitis, in its turn followed by perityphlitis, but that the appendix had any share in the case at all did not enter into consideration. Yet there is no doubt that this case belonged to the same group as the rest, and that ulceration of the appendix was the source of all the mischief. But spontaneous recovery is unfortunately not the rule. When it does take place we may confidently predict freedom from further attacks, for recovery after perityphlitic abscess implies cicatrisation and shrinkage of the appendix.

Finally, as regards the questions propounded at the outset of this, I fear, very imperfect paper, I would say that there should be no hesitation in advising the removal of the appendix in every case of suspected perforation, whether this be accompanied by signs of incipient general peritonitis or by indications of

local suppuration. In the latter case we ought not to delay, as we did in the past, until the abscess has assumed notable proportions. Further, in all cases of apparently simple typhlitis, where resolution is not complete, but a cylindrical swelling is left behind, it were well to invoke the surgeon to remove what may, if left, form a standing source of danger. And in cases of relapsing typhlitis the same procedure may be advocated for the same reason. I am by no means yet fully persuaded that a like course would not be legitimate in all cases, and perhaps one would be more inclined to counsel it if the actual state of the appendix during these attacks could be revealed to us. That there is no necessity for such universal excision is plain, since with many subjects the first attack of typhlitis is also the last, probably because Nature has sealed up the little channel or replaced the lymphoid cells by inert fibrous tissue. Nevertheless, though one may be personally disinclined to advocate this radical cure in every case, it would be difficult to deny that it is based on a sound appreciation of the possible issues of a simple attack of typhlitis.—*The Practitioner*, *October*, 1895, *p.* 323.

44.—RHEUMATISM AS A CAUSE OF APPENDICITIS; POINTS IN ITS MEDICAL TREATMENT.

By Beverley Robinson, M.D., New York.

The etiology of appendicitis in many instances is still very obscure, both for physicians and surgeons. It is therefore satisfactory to become convinced, by careful clinical observation, that one has found an obvious and frequent cause of numerous cases of a disease which is frequently fatal.

To my mind this cause is rheumatism. The judgment I now hold definitely about this matter is not an opinion reached rapidly and without carefully weighing the observations and reports of others. After several years of close inquiry into the origin of those cases I have met with or read about, I have not been able to explain apparently inconsequent facts from any other stand-point. I do not remember personally to have seen an attack of acute articular rheumatism either directly precede or follow evident signs of appendicitis, and to be connected with it in such a way that the relation of the two affections was clearly defined. Although this statement is correct of my own experience, it is not true of others. And already more than one such report has been made. When it comes to the milder, and, according to some, perhaps less characteristic symptoms of rheumatism, these I have repeatedly

observed in patients who have had one or more attacks of appendicitis. Again, I have seen more than one patient who, subsequent to attacks of appendicitis, have had decided articular manifestations, and, during many years of this rheumatic localisation, the appendical region has remained entirely free from any inflammatory disease.

There is really nothing rational to urge against rheumatism as a frequent cause of appendicitis. That rheumatic inflammation should attack this region very often is only what we should expect, if we consider the close relationship of the appendix with the peritoneum: and the fact that this serous membrane, like the pleura or the pericardium, is precisely the structure for which rheumatism, when it leaves the joints, has a special predilection.

The sudden development of many examples of acute appendicitis does not in any degree militate against rheumatism as an efficient and frequent cause of it, since the sudden and rapid development of acute rheumatic inflammation is true of the tonsils, the ovaries, the uterine appendages, and the joints themselves. The rapid progress towards suppuration is no reason to rule aside my explanation, since acute quinsy with suppuration, now well known to be of rheumatic origin—as salpingitis with speedy formation of an abscess cavity of like origin—is no uncommon finding.

No doubt in many cases which I might easily report, exception could be taken by the reader to my diagnosis of the rheumatic causes of appendicitis, in view of possible error of interpretation. Here again, as in most things medical—particularly where clinical manifestations are seemingly doubtful until repeated experience has corroborated proof—we are forced to apply the touchstone of wise therapeutic interference. In this connection I cannot but affirm that treatment with salicin, or the salicylates, in sufficient and frequently-repeated doses, has, in my experience, diminished pain and inflammatory manifestations in the appendical region more frequently than any other routine method of treatment. In many cases, I am now thoroughly convinced, suppuration has by this means been mainly avoided. Not that other remedial measures of a suitable kind should not be instituted. Among these I place as very important liquid, or low diet, and relative rest. In very acute cases, of course, with pronounced fever and vomiting, entire rest in bed, and liquid diet solely, are imperatively required. In these instances, moreover, I would insist in the beginning upon the local application of poultices, or the ice-coil, or ice-bag. I usually prefer repeated poultices, as I believe them more suitable to resolution of rheumatic inflammation. Again, I should rely upon moderately large laxative enemata to

free up constipated bowels in those persons who have very marked general reaction. In numerous instances, I am equally satisfied, where the general reaction is not so pronounced, a mercurial in the form of six or eight grains of gray powder, or an equal dose of blue mass, serves a better purpose. I do not believe it increases the danger to the patient, as I do not believe it increases the peristaltic action of the bowels to any appreciable extent, and I am of the opinion that it promotes the flow of bile, which, in more ways than one, is directly useful. Of course, in some cases where pain is very severe, anodynes should be resorted to, and in extreme instances of this kind hypodermic injections of morphine are our final resort. Yet let us bear in mind that like the operation itself, unless obviously called for, it is bad treatment—radically bad—if my belief in regard to the causation of many cases of appendicitis be correct and sustained.

I cannot but think, even as I write, of an opinion held by one of our most eminent surgeons, viz., that in prescribing a drug the same care and knowledge should be exercised as in performing a severe surgical operation. Evidently the thought passing through the mind of this great exponent of his side of the question, was the distinct conviction of the untold harm accomplished by ignorant interference, seemingly trivial in character. Now, morphine, of all drugs, is the one that locks up most rapidly and completely our secretory functions. It is true of the kidneys, the stomach, the bowels, the liver, the respiratory organs, in one way or another. How, then, can it be rational, when we wish, above all things, to promote and further rapid secretion and excretion, to employ, in very active manner and doses, the drug that arrests it all? Pain is present, is the answer, and pain must be subdued. Yes, I reply, but make the attempt first of all, and as long as you should, with drugs that will not be manifestly harmful. Codeine, in frequent and sufficient doses, will often advantageously take the place of morphine. It does not lock up secretions to anything like the same degree; it does not nauseate or constipate much, as a rule. It does mitigate, and sometimes abolish, pain. It allows time to be utilised so as to use the proper remedial drug, viz., salicylate of soda, and thus it guards the patient not infrequently against surgical interference, which is the ruling spirit of the hour. I do not wish to be considered as one of those who object at all to laparotomy in appendical inflammation, when surgical interference is called for. I do wish at this time to point out the medical way in which much that is beneficial may result, and considerable harm may be avoided.

In conclusion, I would add that local depletion with leeches, or wet cups, over the painful region, in patients of full habit,

remains at present, as during the past, a proper and judicious abortive treatment of appendicitis.—*Medical Record, Sept.* 14, 1895, *p.* 37.

45.—CASES OF BILIARY COLIC CURED BY THE ADMINISTRATION OF OLIVE OIL.

By J. Michell Clarke, M.A., M.D.Cantab., M.R.C.P.Lond., Physician to the Bristol General Hospital.

The case of hepatic colic cured by ingestion of olive oil, recorded by Dr. A. S. Gubb, has led me to report very briefly three cases under my own observation, in which this treatment was followed by satisfactory results. The patients took the oil after meals with less difficulty than one would imagine. They began with a dose of ℥ j, and rapidly increased it, and I found that the first few doses were best taken floated on the surface of a bitter acid infusion. A dose of 8 grains of salicylate of soda was also given in a mild saline purgative before breakfast two or three times a week during the administration of the oil. The patients sought for the passage of a stone in the fæces, but did not detect one.

Case 1.—A man, aged 63, was seen by me in April, 1892, for a severe attack of biliary colic. He was a strong, healthy man, of temperate habits, who had never had any bad illness since the age of 22, when he had inflammation of the right lung. The attack for which I saw him came on suddenly without obvious cause, although he had suffered from acidity, flatulence, and dyspeptic pains for some months previously. The attack was not followed by jaundice. I saw him again in April, 1893, and he then said that he had returned to work in May, 1892, after the first attack, and was as well as he had ever been for ten weeks afterwards, but since then he had suffered from severe attacks of biliary colic about once in every three or four weeks; in the intervals his health was fairly good, but he had lost 30 lbs. in weight during the year. The pain came on quite suddenly at any time of the day or night, without any cause. The attacks were preceded by indigestion, from which he appeared to suffer a great deal. The pain was so bad as often to necessitate morphine injections, and was accompanied by violent sickness; the whole attack lasting for six hours or longer, leaving him quite exhausted. When I saw him he was slightly jaundiced, but he stated that he had not had jaundice before, and that until the preceding two days bile had never been absent from the motions. He looked thin and anxious. The liver edge could be felt below the ribs, the gall bladder

was not detected. The urine contained a quantity of bile pigment, which reacted well to Gmelin's test. He was recommended to take olive oil twice daily, beginning with a dose of ℥ j, and increasing the dose as quickly as possible until ℥ vj to ℥ viij were taken at a time. This he did without much inconvenience, not disliking the oil, and he continued the treatment for about two months. The jaundice soon disappeared, and he had no return of the attacks from the time of taking the oil. I met him in the street recently looking hale and hearty. He said that he felt perfectly well, and had had no return of the attacks now for twelve months, and had regained his former weight.

Case 2.—A gentleman, aged 30, living in London. In September, 1888, I attended him for an attack of catarrhal jaundice, unattended with pain or with any symptoms of gall stones. I next saw him at Christmas, 1893 ; he was on a visit to Clifton, and had been taken suddenly ill with typical biliary colic. This first attack was not a severe one, and was not followed by jaundice; and he returned to London in a few days. During the late winter and spring of 1894 he suffered from repeated attacks of biliary colic at frequent intervals. Some of these were very severe, laying him up for several days, and leaving him exhausted by the pain and vomiting. His general health suffered, and he lost flesh. After the more severe attacks he had slight jaundice, and after all of them the urine was loaded with bile, and the fæces clay coloured. He tried various methods of treatment without obtaining any permanent relief, including a month's residence at Llandrindod Wells for a course of the waters there in the early summer of 1894. After this he was a little better for a short time, but the attacks recurred as badly as ever during the months of July, August, and the first half of September. On the average he had an attack about once in every two or three weeks. During the whole time he had been careful to follow out the usual dietetic restrictions. On September 24 he applied to me for advice, and I recommended him to try the olive oil treatment. This he carried out thoroughly, beginning with a small dose and increasing it up to ℥ iv, or occasionally ℥ v, twice a day. He took the oil for from two and a half to three months, leaving it off gradually. The result has been that from the time that he began to take the oil he has had no recurrence of the attacks, and has remained quite free from pain. The large amount of oil gave him little inconvenience until towards the end of the treatment, when it began to excite nausea.

Case 3.—A stout woman of 40, who had had a large family, and who came to the Bristol General Hospital as an out-patient suffering from jaundice with repeatedly recurring attacks of

severe biliary colic. Treatment by olive oil at once stopped the attacks. She had more difficulty in taking the oil than the other two patients, and could not manage more than ℥ iij at a dose taken twice, sometimes three times, daily. She attended as an out-patient for six weeks, and then ceased as she appeared quite well. I have not been able to obtain any subsequent information about her; but it is probable that if the attacks had recurred she would have come to the hospital again, as she was very pleased with the result of the treatment.—*British Medical Journal, July* 13, 1895, *p.* 76.

DISEASES OF THE URINARY ORGANS.

46.—THE MEANING AND IMPORT OF CASTS IN THE URINE WITHOUT ALBUMIN, AND THE INADEQUACY OF THE ORDINARY CHEMIC TESTS.

By Ludwig Bremer, M.D., of St. Louis, Mo.

[The following, taken from the author's paper, at least illustrates the importance of a thorough examination, microscopical and otherwise, of the urine.]

In my experience and opinion, the presence or absence of albumin in the urine is not nearly of the diagnostic and prognostic importance, as the morphologic evidences of kidney disease, *i.e.*, the presence or absence of casts. I venture the broad statement that a person who constantly or periodically passes urine containing casts, even without albumin, or perhaps albumin in chemically demonstrable quantities, is not in good health. Such a person, in my opinion, has a damaged constitution; his kidneys are, to say the least, vulnerable. The irritative process which gives rise to the formation of casts may not amount to an actual state of inflammation; above all there may not be the recognised somatic signs of fully developed kidney disease, and yet the subjective symptoms may be very pronounced. They often are unaccountable, because sufficient importance is not attached to the presence of casts in the urine of such persons. Many obscure and inexplainable nervous, disorders of an apparently functional character are, however, rendered intelligible when viewed in the light of uræmic or uro-toxæmic conditions. A vulnerable kidney is naturally more easily disturbed in its function, more prone to perverted action than the normal one. If it be true (and the trend of modern

views and observations point in this direction) that there is an internal secretion in the kidneys, it can be easily conceived how, beside the deficient activity of the kidneys, causing a lack of elimination of the body's waste products, there may be a vitiated metabolic process in the kidneys, processes whose products are of a toxic character and when absorbed give rise to a multitude of nervous and mental symptoms. From a single indisposition and malaise, from a slight soreness of the skin to the most torturing of neuralgias, from an insignificant and often unheeded feeling of depression to the most aggravated cases of melancholia or mania, all these shades and different intensities of nervous and mental disorders may arise from such vulnerable or damaged kidneys, the demonstrable evidence of disease in these organs being casts alone, the albumin being completely absent.

Again, there are a number of cases, and I have quite frequently met them in my practice during the last five or six years, in which periodical or intermittent albuminuria is the feature and where the albumin is in evidence only when a nerve storm of unusual severity has set in. I have often diagnosed in such persons by the presence of casts, the vulnerable kidney, which, for want of a better name I have described as latent and intermittent nephritis without albuminuria (*Medical News*, October 20, 1894). There are, on the other hand, several reasons why the examination for casts may prove negative or may be looked upon as negative :—(1) Microscopic incompetency, which is very general. (2) The kidney trouble may have become latent, the casts are really absent, and there being neither albuminuria nor casts, the unwarrantable statement is made, there is no Bright's disease, the kidneys are healthy, while the correct statement would have been that at the present time there is no evidence of kidney disease. (3) In spite of competency, the casts are not detected because of insufficient instrumental equipment. No examination of this sort ought to be considered as final without the use of the centrifuge, an instrument which ought to be in the hands of every physician who is often called upon to make urinary examinations. (4) The examiner, even if he finds casts, may not attach any importance to them if unaccompanied by albuminuria. This, in my opinion, is an error of vital importance and one that is widely spread. Misleading experiments have helped to strengthen this misconception. Among other reasons why the presence of casts in the urine is alleged to be compatible with perfect health, is the finding of casts in the urine of athletes after great muscular exertion. Now nothing is more fallacious than to say that because a man is an athlete, therefore he is a type of health. So far as my own

experience in this matter goes, I have time and again had an opportunity of demonstrating in young men, who used to be college athletes, the existence of hypertrophied hearts and the presence of casts (without albumin) in the urine. The clinical symptoms of their disease presented the mottled picture of neurasthenia. These were certainly damaged men and their kidneys were not only vulnerable, but actually diseased.

Among the other symptoms which latent or intermittent chronic parenchymatous nephritis may give rise to, is that known as "dead fingers." I must confess that I have seen but few patients who complained of this symptom. Quite frequent, however, are disturbances of speech and memory. Aphasic phenomena are particularly apt to manifest themselves, often only in a rudimentary or fragmentary way. Inexplainable diarrhœas, harassing coughs, huskiness of voice, itching of the skin, nettle rash, muscular twitchings, hot waves and rushes of blood to the head, with a host of other symptoms may be present.

In my experience, many cases of supposed malaria and grippe were nothing else than cases of acute or subacute nephritis, developing from the mild chronic form above alluded to. On the other hand, I believe that both these diseases are powerful factors in producing the trouble under discussion, giving rise to an acute infectious nephritis which ends in a slow, insidious chronic form without albuminuria. Especially is grippe apt to leave a chronic parenchymatous nephritis behind.

As a prominent physical symptom of an existing chronic parenchymatous nephritis I have often seen, especially in men, a slight thickening of the temporal artery, with the characteristic tortuosities so common in the cirrhotic form of Bright's disease. Often it is only indicated by a temporal pulse stronger than normal. The main symptoms, however, are generally the subjective ones briefly outlined above.

In conclusion, I would say that a person who has constantly, or from time to time, casts in the urine, even if they be only of the hyalin variety, must be considered damaged and prone to contract and succumb to other diseases. Again, albuminuria without casts is of exceedingly rare occurrence, while the opposite, casts without albuminuria, is very frequently met with.

A rational course of dietetics, above all the avoidance of rare meats and the derivatives of meat, such as meat soups and rich gravies often bring about great improvement and in some cases total disappearance of the casts, together with the subjective symptoms. As a curative remedy I have great faith in mercury, especially blue mass, administered in 5 grain doses twice a week, and small doses (5 grs.) of sodium iodid.

I have had patients under observation for many years, who, by prudent living have managed to remain in a fair state of health, attending to their business and enjoying life in a quiet way, although casts would be from time to time demonstrated and slight uræmic disturbances were not infrequent. If a proper hygiene is observed, latent or intermittent chronic parenchymatous nephritis does not seem to interfere materially with longevity in the well-to-do. It is different with people who have no means of properly taking care of themselves.—*The Journal of the American Medical Association, October* 5, 1895, *p.* 575.

47.—FUNCTIONAL ALBUMINURIA.

By Charles E. Simon, M.D., of Baltimore.

[At the end of an interesting paper on this subject, the author makes the following remarks on diagnosis, prognosis, and treatment. It may be open to some question as to whether as serious a view would be taken of functional albuminuria in this country as to lead to a strict dieting of the patient.]

The diagnosis of this form of albuminuria, I believe, can generally be made without much difficulty, the salient symptoms being those referable to the nervous system, as described above, the absence of cardiac mischief, and it seems to me an absence of increased arterial tension; furthermore, the dyspeptic symptoms in the presence of normal digestive processes, and finally the condition of the urine—viz., a high specific gravity, a fairly normal amount of water, an increased amount of urea, of uric acid, and often of oxalic acid, a normal or increased amount of chlorides, the absence of indican, according to the Jaffe-Stokvis test, the presence of albumin, not exceeding two grammes in the twenty-four hours, combined with the occurrence of a small number of hyaline or very finely granular casts. The rapid response to treatment, finally, should be mentioned among the characteristics of the disease. It will hence be well to regard this form of albuminuria as being referable to a general metabolic insufficiency on the part of the body economy, characterised by an increased nitrogenous waste on the one hand and insufficient combustion on the other, resulting in an excessive formation of uric acid, and at times of oxalic acid.

In the light of such cases it seems very doubtful whether we are entitled to speak of the existence of a purely physiological form of albuminuria, and a repetition of the work done in this direction, in which the possible causative factors observed in my own cases are taken into careful consideration, is certainly very desirable.

It would probably also be more conservative to comprise the various forms of so-called physiological albuminuria under the general heading of functional albuminuria.

The prognosis of this disease is, of course, a matter of great importance to the individual afflicted. That chronic interstitial nephritis can result ultimately could be *a priori* expected, and a case in point has been described by Da Costa himself. That the disease can exist for years the cases published seem to demonstrate, as also the fact that under proper treatment, especially if the disease has not existed for many years already, recovery takes place invariably.

To the life-insurance physician these cases must be of unusual interest, involving in the first place the question as to the candidate's admissibility ; and, secondly, the fact that a single negative examination of the urine would by no means guarantee an absence of the disease, the general symptoms of themselves probably not being sufficient to warrant the rejection of the applicant.

Without a knowledge of the previous existence of albuminuria, a point which it may not always be wise to disclose to the patient, the life-insurance physician would certainly be at a great disadvantage. For such cases, where the general history and symptoms would awaken suspicion, but where the examination of the patient himself, as also of his urine, shows no abnormities beyond a specific gravity approaching the upper limit accepted by such companies, and the presence of numerous uric-acid or of oxalic-acid crystals in the sediment perhaps, a definite conclusion could be reached by instructing the candidate to indulge liberally in red meats and carbohydrates for a period varying between one and four weeks, at the expiration of which time the urine should be again examined, when a trace of albumin, recognisable even by the coarser tests, will probably always be demonstrable, unless, indeed, the patient has undergone active treatment extending over a period of several months at least, when he may really be regarded as well, and unconditionally accepted.

The excessive elimination of uric acid and of oxalic acid in itself may, of course, become a source of anxiety, favouring, as it does, the development of renal and vesical calculi. The treatment of this disorder is very successful on the whole, and entirely so as far as the albuminuria is concerned, while the general symptoms, as well as the lithuria and oxaluria on the other hand, may resist treatment for a long time.

Most important, of course, is the administration of a diet, rigidly enforced, and calculated to throw as little work as possible upon the kidneys, at the same time combating excessive formation of uric acid and oxalic acid. To this end I order a

diet the staple article of which is milk, or still better kefir, as without these I have unexceptionally met with the complaint of increasing weakness and prostration. Of milk the patient should take from two to three pints in twenty-four hours, while of kefir one to two pints are sufficient, particularly if an additional pint of milk can be taken. Nourishment should be given five times daily.

A general idea may be formed very readily of the amount of nitrogenous food consumed by a patient by means of an ordinary urea estimation made once in ten to fourteen days, and an increase or decrease ordered, according to the requirements of the case. Of meats I allow the so-called white meats only—*i.e.*, fish, the white meat of chicken, turkey, and birds, sweetbread, calf's brain, crabs, oysters, frogs, and rabbits. Red meats proper are strictly interdicted. Of vegetables again I allow spinach, oyster plant, parsnips, turnips, carrots, Brussels sprouts, white asparagus, &c., and of fruits only stewed apples, prunes, pears, and peaches. Coffee and tea are interdicted, and alcohol as a general rule also, unless the degree of prostration is very great, when a pint of good French red wine, such as Pontet Canet, St. Estéphe, St. Julien, Mèdoc, etc., may be given during the day, at meal times. Stale bread, *Zwieback*, toast, aleuronat bread are permissible, particularly the latter.

As regards baths, the Turkish bath of ten minutes' duration, followed by a short process of shampooing, the needle bath, and at least thirty to forty minutes of rest, once a week, and one ordinary warm full bath before retiring two to three times a week, followed by coarse friction, seem to be especially serviceable. From cold baths I have only seen deleterious effects. If anæmia exists, warm sea-water baths, which may be well taken at home, are of benefit.

Eight to ten hours of undisturbed sleep should be had, if at all possible, and exercise should be taken daily, gradually increasing as the degree of prostration diminishes, in country and not in city air, for which purpose a ride on horseback or on the bicycle once daily seems to be the most effective.

As regards medication, finally, very little or nothing at all is called for; anæmia should, of course, be treated, preferably by means of iron and quinine; while fifteen drop doses, three times daily, of the tincture of nux vomica, gradually increasing to the high doses employed by Osler—*i.e.*, twenty to thirty drops—may be given in other cases. Of mineral waters I instruct my patients to consume liberal amounts—the Otterburn, Buffalo, and Londonderry lithia waters appearing to be of decided benefit in these cases; in their absence, however, distilled water to which a pinch of salt has been added may be used.—*New York Medical Journal, September* 14, 1895, *p.* 330.

48.—PARENCHYMATOUS METAMORPHOSIS OF THE KIDNEYS.

By William Henry Porter, M.D., Professor of Clinical Medicine and Pathology at the New York Post-Graduate Medical School.

[The following is taken from Dr. Porter's second Lecture on the subject at the New York Post-Graduate Medical School. The cases and some other parts of the lecture have been omitted owing to space.]

It is now my intention to show you patients representing this variety of renal lesion which in the table before us is classed as a chronic parenchymatous metamorphosis or degeneration, together with some other examples. It was in 1884 that my first article was published, in which attention was directed to the fact that these parenchymatous changes were in no sense inflammatory in origin, but were the result of increased physiological work imposed upon the renal glands at a time when their nutritive supply was defective. It was not, however, until 1889 that the term parenchymatous inflammation became generally omitted from advanced pathological literature, and the term degeneration substituted in place of inflammation or metamorphosis. The latter term was used by me as indicating the process of increased work upon a defective nutrition, and did not of necessity indicate an absolutely destructive process, as does the word degeneration. The former indicates a process, the latter the result.

As a result of a long-continued disturbance in the digestive functions, faulty action on the part of the liver, and in the general assimilative processes of the body, nutrition is impaired, so that instead of getting the complete product of proteid oxidation, urea, numerous incomplete products are formed, and the kidneys are continually called upon to form and eliminate an innumerable number of by-products of proteid metamorphosis, such as abnormal amounts of uric acid, creatinin, oxalic acid, lactic acid, the biliary salts and pigments, to say nothing of many others which are less perfectly known. This naturally imposes excessive work upon the kidneys at the same time that their nutrition is imperfectly sustained in consequence of this general impairment in assimilation and nutrition. Consequently the epithelial cells become first infiltrated with these abnormal and by-products. These act like foreign bodies upon the kidney, and in this poorly-nourished state of the renal glands and of the body at large the protoplasm of the epithelial cells lining the uriniferous tubules becomes changed, so that it undergoes an intrinsic retrograde transformation. The kidney as a whole

becomes larger, softer, and paler than the normal organ. The capsule is not thickened nor adherent, but easily separates from the underlying renal tissue, which remains perfectly smooth after enucleation. Such kidneys weigh from six to twelve ounces instead of the normal four and one-half to five ounces.

The kidney, when in this state, has its physiological function impaired. At first the specific gravity of the urine is high, but the quantity of urea is below the normal amount, uric acid and the urates increase in quantity. Later, oxalic and lactic acids are formed as by-products of incomplete proteid oxidation, also bile pigment and salts and finally albumin appear in the urine, followed by casts and considerable cast *débris*. The form of casts usually found with this lesion are the hyaline, or the coarsely granular and fatty variety, and they usually have a large diameter. This class of casts, together with the small quantity of urine of high specific gravity, and with an abundance of cast *débris*, at once, in connection with a careful consideration of the etiological factors, enables a correct diagnosis to be made.

The high specific gravity of the urine with the diminution in urea is now easily explainable with our more exact chemico-physiological knowledge. The diminution in quantity is one factor in raising the density, but the chief cause is the higher molecular weight of the incomplete or by-products of proteid oxidation as compared with that of the urea.

In my experience this is one of the most important renal lesions with which we have to deal from a clinical stand-point, and hence it should be studied with especial care. It is that form of renal lesion which most frequently occurs in those people who use alcohol to excess, or who eat inordinate quantities of over-stimulating food, or in those who suffer from repeated malarial attacks, which congest the liver and impair its function, and at the same time reduce by overtaxation the oxygenating capacity of the system, thus producing sub-oxidation and mal-assimilation, defective nutrition, and increased work for the renal glands.

In this connection, before showing you the cases, let me remark that this form of kidney-lesion not infrequently causes toxæmic symptoms, commonly called uræmic, followed by death, without the appearance of albumin and casts having ever been found in the urine during the life of the individual. It can be justly and scientifically said that a scanty quantity of urine, of high colour, high density due to by-products of nitrogenous waste other than urea, with a diminution of urea and often of uric acid, denotes a very unsound kidney even in the absence of albumin and casts. Such patients frequently die suddenly, and apparently without cause. But a careful study of these cases usually elicits the history of a sudden exposure to cold, or the

eating of an unusually large meal, or drinking to excess of alcohol, either one of which tends to increase the amount of work already thrown upon these overworked and poorly-nourished organs. As a result, the by-products of proteid metamorphosis which should be formed and eliminated by the kidneys are not so transformed, but are retained within the body. Consequently the whole system becomes more or less poisoned by different forms of toxine elements of nitrogenous composition. The nervous system is influenced as by poisonous drugs, and toxic symptoms and death often follow each other in rapid succession.

A knowledge of such cases is also of great importance to the operating surgeon, for many a fatal issue has been directly due to this class of renal lesions, the kidney in its damaged condition being unable to cope with any extra strain.

Before taking up each case separately it is best to remember that the symptoms of all this class of disease naturally fall under six distinct subdivisions :—First, the *cephalic*, which are the occipito-frontal headache, persistent in character, dimness of vision, flashes before the eyes, or absolute blindness, delirium and convulsions, or stupor and coma. Second, the *respiratory*, such as the bronchial spasm, asthmatic symptoms, extreme dyspnœa, cough, expectoration, and in some rare cases œdema of the lungs or glottidis. Third, *cardiac and vascular*, such as the hypertrophied heart with high tension, or the reverse with low tension. Fourth, *general*, such as puffiness under the eyelids, swelling of the feet, ankles, limbs, or a general anasarca, and a peculiar waxy translucent appearance of the skin, which when once seen and recognised is easily detected again. In this group may be classed the general muscular twitching. Fifth, the *alimentary*, such as nausea, vomiting, diarrhœa, or constipation, or the one alternating with the other. Sixth, the *urinary*, as detailed in full in our chart, by which an exact diagnosis can be made of the kind of renal lesion existing in the patient.

Every case of renal disease belonging to either class will have one or more symptoms as outlined in these six headings. and may have them all from time to time in the course of the disease, or most of them may be present at once.

With this understanding of these lesions the treatment becomes rational and scientific and no longer pure empirical dogmatism. The work of the renal glands must be decreased and the nutrition of the kidneys must be augmented. This accomplished, cures are of necessity effected.

The chief object to be obtained in dealing with this class, and in fact with all instances of suboxidation, is to decrease the quantity of the food stuffs and to limit them to those most easily digested and perfectly utilised by the animal economy.

We try to eliminate a portion of the fats and sugars, and to increase the quantity of proteids. This is best accomplished at first by limiting the diet to skimmed milk, buttermilk, kifer, koumys, kumyss, matzoon, or kumyssgen.

Clinical experience is fully explained and sustained by the advanced chemical and physiological facts which are now at the command of every practitioner, all of which prove conclusively that in health the best dietetic results are obtained through a *well-regulated mixed diet.* The chief point to be remembered, however, is to keep the quantity of food ingested always within the limit of the oxygenating capacity of the animal organism. That the food ingested is within this limit can be accurately determined by a daily study of the rise and fall in the excretory products which are carried out of the system in the urine.

The liver being the first glandular organ to suffer as a result of this augmented work and progressive state of suboxidation, its bile-secreting power becomes impaired. The bile that is secreted is poor in quality and often defective in quantity. To overcome this abnormal condition and improve the bile-secreting function of the liver, the hepatic cells require stimulating to an increased activity, that the old and deteriorated bile may be swept out of the system. This is best accomplished by the use of the following tablets :—℞ Arsenious acid, gr. i ; bichloride of mercury, gr. i ; powdered ipecac, gr. ii ; mild chloride of mercury, gr. xvi. Mix, and divide into fifteen tablets.

To replace the old bile and assist nature in the digestive processes effected in the alimentary canal, some new and pure bile must be supplied from without. To this may be added a little pancreatic extract to assist still further in perfecting the defective digestive functions.

In these nephritic conditions there is apt to be some constipation, a weak and imperfect action of the heart, and a general anæmic state of the whole system. All these conditions can be met and overcome by the following combination :— ℞ Fel. bovis inspissatum et purificatum, ℈ii ; extract pancreatine, ʒi ; hæmogallol, ʒii ; caffeine muriate, ʒi ; extract colocynth comp., gr. xx ; euonymus, gr. x ; extract aloes, gr. vi ; extract calumbo, ʒss. Mix, and divide into forty capsules. Sig.—Two before each meal.

The following mixture also assists in the digestive action, and the contained strychnine helps the caffeine in its action upon the heart and general circulation ; the strychnine also stimulates the muscular activity of the stomach and aids in perfecting the appetite and digestive functions :—℞ Strychnin. sulphatis, gr. ss ; acid. phosphoric, dil., ʒvi ; aquæ, q. s. ad ℥iii.—M. Sig.—One drachm in water after meals.

By this reduction in the quantity of the food-stuffs, together with a scientific regulation of the quality ingested, a great saving in the expenditure of the oxygen taken into the system can be secured. This naturally enables a more complete and perfect oxidation of those substances which are absorbed. Added to this regulation of the diet is the benefit that can be derived from the scientific administration of therapeutic agents instead of giving drugs as specifics or in an empirical fashion.—*International Clinics, Vol.* 2, *Series III., p.* 59.

49.—RENAL DROPSY.

By W. Howship Dickinson, M.D., F.R.C.P. Lond., Hon. Fellow of Caius College, Cambridge; Consulting Physician to St. George's Hospital and to the Hospital for Sick Children, Great Ormond Street.

[The following is taken from the third of the Baillie Lectures upon Dropsy, delivered by Dr. Dickinson in St. George's Hospital:]

The next division of the subject comprises dropsies dependent on, or at least connected with, changes in the blood; among them is renal dropsy and that of chlorosis. It may be said in general terms that renal dropsy and cardiac dropsy have this essential difference: cardiac dropsy is due to diminished absorption and renal dropsy to increased exudation. Renal dropsy is more complicated than that of heart disease; conditions of altered blood are involved with questions of altered mechanism; there are several factors to be considered, and some discrepancies to be reconciled. In the first place there is a general inverse ratio between the amount of dropsy and of urine; the less urine the more dropsy. But this does not always hold good. In obstructive suppression, say, from renal calculus, though urine may be totally absent for many days, even for a fortnight, there is usually no trace of dropsy of any kind. With nephritis, where dropsy is so usual a concomitant, it sometimes happens that this result is absent where we should most expect it. There is a very acute and fatal form of the disease which I have seen after scarlet fever, in which dropsy may be totally, or almost totally, absent, notwithstanding that the urine may be scanty almost to suppression. Death is quickly brought about by uræmia, but dropsy is conspicuous by its absence. Such cases are sufficient to show that the ordinary rule, that the dropsy increases as the urine diminishes, and *vice versâ*, is not invariable, but that other conditions beside the

exit of water by the kidneys have to be taken into account. In a paper to which I have already referred, and to which I may appeal for particulars, I gave a number of sphygmographic observations bearing on the relations of blood-pressure and renal dropsy. The conclusions are briefly these: renal dropsy arises, together with a certain increase of arterial pressure which appears to be essential to the process; the increase of pressure with early dropsy is not so great as obtains later, but nevertheless is distinct; when under the depressing effect of the disease the force of the circulation is diminished instead of being increased, then dropsy is absent; we see this in obstructive suppression, which is attended with a failing pulse, death by syncope, and a heart uncontracted after death. I regret that I have no sphygmographic evidence bearing upon this, but the failure of pulse and heart are sufficiently apparent. It would seem that a certain force is required for the accomplishment of the transudation which constitutes renal dropsy, failing which this does not occur, however other circumstances may invite it. Vomiting and diarrhœa may take its place.

The dropsy of kidney disease is evidently connected with the retention of renal excreta, which exert some special action upon the capillaries which at once increases transudation and hinders the circulation. This is not inflammation, but may remotely resemble it, or we may regard it as akin to secretion, and as tending to relieve the blood of its morbid elements. The attendant hindrance I have dwelt upon in the first lecture, together with its effect upon the arterial system. The association of dropsy with this difficulty points significantly to its position in the capillaries rather than the arterioles. It is improbable that the transudation, which is necessarily of capillary origin, would be thus promptly poured out were there any considerable constriction of the arterioles to cut off the blood from the ultimate vessels. Among the circumstances which conduce to early renal dropsy is the state of the respiratory organs which is commonly found with this condition. In a large proportion of cases there is broncho-pneumonia or some allied condition, which must assist the process by hindering the return of venous blood.

Three stages are to be recognised in the natural course of renal dropsy: its accession, its removal, and its reappearance. This division, of course, applies only to cases which become chronic, and go on to the latest issues of the disease. Numbers happily get well shortly after the outset; for such there are no subsequent stages; others are debarred from them by early death. Taking the instances where the kidneys are irrecoverable, and yet allow of a protracted existence, what happens is this: the heart and arteries slowly become hypertrophied, the

arterial tension increases, the pulse hardens, the urine becomes superabundant, and the dropsy lessens and then disappears. With the access of the disease we have the tension increased to a certain degree, and with this dropsy ; with a further increase of tension and concomitant changes in the heart and arteries the dropsy goes. This result of the *vis medicatrix naturæ* is often placed to the credit of the last drug or the last medical attendant. How is it brought about? Probably in two ways ; the increased blood-pressure is a diuretic of no mean efficacy, and the increased expansile power of the hypertrophied left ventricle draws upon the veins and pumps out the water-logged vessel. But this is not the finish. The last scene of all that ends this strange eventful history is heart-failure, and a return of dropsy which is now more cardiac than renal. The beneficial part of the process can be conducted only so long as the mitral valve remains efficient. A time comes, if the patient lives long enough, when the heart stretches under the strain, and the mitral orifice becomes too wide to be closed by the mitral flaps. Then comes regurgitation, a mitral murmur, a return of dropsy, which often invades the thoracic cavities, often pulmonary apoplexy, and all the circumstances of mitral disease. Pulmonary apoplexy and hæmoptysis may ensue simply from renal disease without any affection of the heart excepting what renal disease entails. I have given examples of this in the paper that I have more than once referred to.

The treatment of renal dropsy is by no means unsatisfactory, since we often have with us a strong-siding champion—Time. We must not be guided solely by *a priori* reasoning or theoretical considerations, but largely by experience. We have to trim and adjust and pursue a system of compromise. We have anæmia on one hand and uræmia on the other, and must steer between Scylla and Charybdis. We have to depurate, to dehydrate, but not to anæmiate. We must evacuate, but not exhaust. "Spare diet and spring water clear" may purify the blood, but are not remedies for anæmia. Watery purgatives, compound jalap powder, sulphate of magnesia, and under extreme circumstances elaterium, may be given periodically and alternately with hot-air baths. Sudorifics in the shape of drugs are useless as remedies for dropsy, but I have known this, when obstinate and extensive, to be entirely removed under the influence of hot air, which I have been in the habit of applying only below the knees ; the effect is general and sufficient without being excessive. Of the medicines of the diuretic class the only one of special use is digitalis, and this is so valuable that I have laid down a rule for myself from which I seldom depart—if there be dropsy in the course of renal disease give digitalis. This is not merely a diuretic, but probably has an action on the cardio-vascular

system which is beneficial under the circumstances. A very low diet does not do; I give fish generally, and have often exchanged it for a little meat with obvious advantage. The treatment of renal disease is often overdone in the way of taking too much out of the patient and not putting enough in. For the more chronic cases iron is generally beneficial; the perchloride may be conveniently associated with digitalis and enough sulphate of soda or of magnesia to obviate any constipating effect. I may add a word about tapping which is much what I have said in reference to cardiac dropsy. Tap the pleuræ or the peritoneum with confidence, but leave the legs alone. Relieving the abdomen is often the best way of relieving the lower extremities, for it takes the pressure off the vena cava. With regard to the pleuræ, by removing fluid from them we achieve two ends: not only do we ease the breathing, but by taking pressure off the pulmonary vessels we facilitate the return of venous blood, and thus promote the absorption of dropsy fluid in every part of the body.—*The Lancet*, *August* 3, 1895, *p.* 257.

50.—CRYPTOGENIC CYSTITIS AND PYELITIS.

By Carl Posner, M.D.,
Professor of Genito-Urinary Diseases, University of Berlin.

[This paper was read before the American Medical Association, 1895.]

The time is gone when the ever usable and available "catching cold" might serve as an explanation for suppurations and catarrhs of the mucous membranes. We know now that while it may produce a degree of predisposition of the tissues, the real awakening of the affections in question must proceed from precisely definable poisons. These, in the vast majority of cases, are connected with micro-organisms or are produced by them.

Thus, "vesical catarrh from cold," which formerly was so frequently diagnosed, has disappeared from our field of vision; in like manner, purulent inflammation of the pelvis of the kidney must be attributed to pyogenic presences—bacteria or the products of their metamorphosis — impinging upon the mucous membrane. Their presence is an absolute *sine qua non*, without which any disturbances such as stones, foreign bodies, stasis, &c., can not produce this definite effect.

How do these pyogenic elements enter the urinary passages? As regards the bladder, it is now the habit to think exclusively of infection from without. Bacteria can readily be carried into

the bladder from the urethra by instruments with ease. L. Lewin's and H. Goldschmidt's experiments have demonstrated the process by which they can certainly occasionally ascend to the pelvis of the kidney.

But this simplest of explanations does not always apply. Cases are not at all rare in which cystitis appears, though they have never been catheterised, and with equal frequency pyelitis obtains without ever having been preceded by cystitis. In the latter, post-mortem examination often enough shows an absolutely intact condition of the bladder with severe suppuration of the kidney.

The deduction is inevitable that in such cases the pus producers have immigrated from the circulation. The kidneys serve as drains for the body ; any presence of micro-organisms causing fluid poisons must lead to their elimination by the kidneys, and attention has often enough been attracted to the danger to which the kidneys are exposed by the presence of purulent foci in the organism. Pyelitis has frequently appeared after abscesses and furunculoses. But in the majority of instances no heed has been taken of the fact that the healthy body continually harbours immense numbers of pus producers which relatively slight causes can send into the blood and the kidneys. So the intestinal bacteria, pre-eminently among them the bacterium coli, are entirely innocuous parasites as long as they inhabit their normal domiciles ; but as soon as they migrate into other tissues, they act as most energetic pus provokers.

Brunner's declaration regarding strumitis must be designated a most important general law, and a very significant one for general pathology. The participation of the urinary passage herein might perhaps have been deduced from the circumstance that of all the bacteria which have been proved to be provokers of cystitis and pyelitis the bacterium coli plays a most important part.

Numerous experiments made by me conjointly with Dr. Arthur Lewin have shown that upon completely tying off the rectum, eighteen to twenty-four hours suffice to produce an inundation of the entire body with bacterium coli. When we injected the easily discernible bacillus prodigiosus into the rectum of animals and ligated it at once, and allowed the same time to elapse, we found this readily recognisable organism in all the organs of the body, and especially in the kidneys and urine.

This, which refers to micro-organisms, as easily applies to fluids. It has long been known that drugs and poisons of most widely different kinds such as iodine, bromine, carbolic acid, corrosive sublimate, quinine, morphine, &c., are as quickly absorbed by the proctodeum as when they are applied subcutaneously. I made a series of experiments with the assistance

of Mr. Fanadic, to elicit a closer knowledge of the manner of this absorption, by injections of solutions of colouring matters into the rectum. Aside from other results, precisely the same facts obtained, viz., that twelve to fifteen minutes after an injection into the rectum (for example, of indigo-carmine) it could be found in the kidneys and urine.

No one who witnessed these experiments can escape the conviction that they point to a cause for the development of such renal and vesical affections as hitherto have been obscure. As yet, far too little attention has been given to the dependence of these organs upon the intestine. And still, observation of diseases of the urinary apparatus indicates often enough that their origin should be sought for in digestive disturbances.

The future will teach in how far purulent diseases require consideration in this connection. I believe, as has been elsewhere suggested, that chronic forms of nephritis, in their narrower sense, will find their explanation herein.

It may suffice for the present to invite attention to the conditions under which those many cystites and pyelites, formerly designated as "cryptogenic," may originate. Then, accepting that the bacterium coli can provoke such diseases, the conclusion is inevitable that intestinal affections which can cause them to penetrate the circulation, merit special consideration.—*The Journal of the American Medical Association, August* 3, 1895, *p.* 195.

Surgery.

GENERAL SURGERY AND THERAPEUTICS.

51.—THE SURGICAL TECHNIQUE OF ASEPTIC WOUNDS.

By Henry O. Marcy, M.D., Boston, Mass.

[The following is an excerpt taken from Dr. Marcy's paper, read before the American Medical Association.]

Wound infection, in a general way, is fairly well understood, and those who have given special attention to the subject will, at least in a large degree, accept the opinion which I published some years since, that suppuration, supervening in a wound deliberately made by the surgeon, through healthy integuments, indicates that there has been some avoidable error in its technique.

In wounds of important structures and of considerable extent, there is generally a prompt reaction, exhibited by a considerable, more or less, rise of temperature, which is explained probably by the reflex disturbance of the nervous centres. Within limit this may be regarded as a favourable reaction, since within 24 to 36 hours the temperature falls without serious constitutional disturbance. This must not, however, be confounded with the fever due to septic infection, which usually does not make its appearance until after the third day. If, on the contrary, the divided structures are not brought into apposition, the space is filled with coagulated blood and serum, and the repair processes become far more complicated. If in addition to the blood clot we have introduced into the wound a bacterial infection, entirely another class of conditions supervene, dependent upon the character of the infective material. If the wounds are large with much effusion, owing to the development of the bacteria, the blood becomes rapidly decomposed and a large amount of chemic poisoning is produced, the so-called toxins which are absorbed causing a kind of septic intoxication, varying in degree, but which may speedily prove fatal.

All incisions must be cleanly made with a very sharp knife, avoid the still too common practice of seizing and holding considerable portions of tissue with compression-forceps for the arrest of hemorrhage. Protect the structures carefully from tearing in the separation of wounds, and, perhaps, more important than all, be careful in the adjustment and coaptation of like structures when suturing in the closure of wounds.

The organisms in the air are much less potent for ill in surgery than was earlier believed, and it is not less certain that the all-invading bacteria, contaminating clothing not worn upon the person, and water as usually found in hydrant service contain less dangerous elements than was at first supposed.

It is due in large measure to the very valuable experimental researches, carried on in the bacteriologic department of the Johns Hopkins University, that we have the most important demonstration that the all-pervading source of the pyogenic bacteria is found in the dead and dying epithelial cells. For the destruction or removal of the bacteria invading the skin antiseptic measures are of the greatest advantage and even necessary. The demonstration seems conclusive that the great enemy to all surgery, the hand of the operator, is best disinfected as first taught in Baltimore, by the use of solutions of permanganate of potash and oxalic acid.

The only class of wounds which this occasion affords the opportunity for discussion is that in which the surgeon is enabled to operate through previously unbroken, undevitalised, superficial structures, and where the wounded parts can be brought into complete approximation. Theoretically under such conditions primary union must ensue, and where this fails from the occurrence of suppuration, as I stated in the beginning of this paper, there has been some fault in the technique. This naturally leads to the discussion of the terms aseptic and antiseptic, used with confusion, without a correct appreciation as to their meaning, and perhaps it would be better if both terms were entirely discarded. The problem is to make and maintain a wound without infecting the structures involved. This surely should leave the parts aseptic, that is, free from pyogenic organisms. In order to do this, it is equally clear that the circumfusa of the wound, the instruments, sponges, suture material, and hands of the operator must be free from septic organisms. To effect this the various means at our disposal, by which we sterilise the materials in use may still be called antiseptic, the name first given to these processes by the great master of modern surgery. First and most important is the disinfection of the skin of the patient and of the hands of the operator. It will be remembered that the cocci growing in the skin penetrate as deeply as the devitalising processes of the

epithelial cells; that the sebaceous and hair follicles are yet more deeply invaded, and that they are here protected from destruction to a certain extent by the glandular and fatty products.

It seems almost superfluous to refer to careful experiments, often repeated, which show that soap and water, applied with the minutest care fail to disinfect the glandular structure of the skin, and, if this is true, although these measures are of the greatest importance, the processes of so-called simple cleanliness are not sufficient. Therefore we must call to our aid some of the various antiseptic agents long since proved trustworthy. The first of these is carbolic acid, objectionable because of its irritating character. It is found, however, that this very irritation of the skin is owing to its penetrating power upon the epithelial cells, and the glandular structures. It has an affinity for oily products and easily impregnates fatty substances. In this respect it is much more efficient than even considerably strong solutions of corrosive sublimate, but in the glandular and hairy portions of the body even the five per cent. solution of carbolic acid must remain in contact for a considerable period to disinfect these portions. For this purpose a 10 per cent. solution of oxalic acid is far more trustworthy. Cultivations made from the scrapings of the skin after having been treated carefully with oxalic acid solutions show the epithelial *debris* to be invariably sterile, even when the material to be tested is taken from the deep folds of the finger nails.

Instruments are easily disinfected by heat, which is preferable to immersion in disinfectants, since the damage to the instruments is less than by a considerable period of immersion in antiseptics.

The surroundings of the parts to be operated upon must be also sterile. This is best effected by packing about with towels sterilised by heat, or by immersion in antiseptic fluids. I prefer the latter, towels wrung from a solution of one to 1,000 of bichloride of mercury, since they remain in position much better when wet than dry. It is also important to have on a table near the operator dishes containing solutions of bichloride of mercury in which the instruments and hands may be occasionally dipped.

I use irrigation much less than formerly, but I am very sure I have seen no ill results from the so-called chemic irritation of warm solutions of corrosive sublimate, even in strength of one to 1,000, and I am confident that much less damage to the injured parts ensues from it than from the irritation caused by frequent sponging. When the proper technique is faultless, it is very likely that sterilised water is of equal efficiency, but my experience teaches me that the damage from the so-called

chemicals, if properly applied, has been greatly overestimated. To one who is an imperfect master of technique I can not question but that the use of weak antiseptics and hot irrigating fluids is of great value.

Sponges should be thoroughly washed in cold water and after repeated washings with soap and water, I prefer soaking them several days in a five per cent. solution of carbolic acid, changing the acid two or three times. They are then put into a jar containing this solution and kept until required for use. This process is conveniently varied sometimes by carefully bleaching in an oxalic acid solution. They must, however, be carefully watched, for if kept too long in it the integrity of the sponge is impaired. If preferred, the sponges may be dried in a muslin bag wrung from a five per cent. solution of carbolic acid and kept in a sterilised jar until required for use. They should then be put into a solution of one to 1,000 bichloride of mercury at the time of preparation for operation.

I consider it rather disadvantageous than otherwise to delay the operation by seizing every small bleeding vessel with compression forceps. Slight pressure will usually suffice and the tissues are far less devitalised than by the use of the forceps. I seldom use ligatures except for the larger vessels, adjusting the sutures so as to include all special bleeding points.

The drainage-tube is now thought far less important, although unfortunately its use is still far too frequent. It is now judged wiser carefully to coapt the wounded surfaces, and by some means hold them in fixed apposition. The still too common practice is, to effect this by the use of interrupted superficial skin sutures, and hold the adjacent parts firmly in place with compression bandages. These are supposed to consist of antiseptic dressings, applied in the form of pads to serve also the purpose of absorbing deleterious wound secretions.

The tendon suture softens very slowly in watery solutions, and does not swell and become yielding when buried in the structures. As a consequent, the knot, if used as a ligature, is as trustworthy as that of silk, and a tendon of the same weight and size is very much stronger. When properly chromicised, the tendon suture undergoes a very slow metamorphosis when buried in the living tissues, and weeks after its insertion the line of suturing is easily traced.

The application of the buried suture may be effected in various ways. Where, for instance, it is desirable to coapt and hold at rest all the sundered structures, especially if they are liable to be hemorrhagic, the double continuous suture is of great importance, double, so that the tissue may be equally and evenly included and the coaptation perfect. A continuous suture has a distinct advantage over the interrupted, in that

we reduce to the minimum the knots which from their undue size ever act more or less as irritants. A great advantage results from the even adjustment of the parts, since in continuous suturing the compression must be the same along the whole line of stitches. In the application of buried sutures, it is of the first importance to remember that we do not use undue constricting force, since we are dealing with vitalised structures in which the circulation must not be unduly impaired.

For the coaptation of the majority of wounds, the single running suture is to be preferred, as in illustration, after the excision of the breast, the amputation of a limb, &c. Strict coaptation of the divided structures leaves no open spaces or pockets to fill the blood or serum, and being aseptic, the use of the drainage-tube is worse than superfluous. He who drains an aseptic wound where coaptation of the sundered structures is possible, does it invariably to the damage of his patient. Fortunately, this practice is lessened each succeeding year, and the time is not far distant when, under these conditions, drainage will be absolutely abandoned.

Aseptic wounds should be completely closed at the time of operation. A sharp Hagedorn needle, armed with a fine tendon, should be introduced from side to side of the incision, through the deeper layers of the skin only, parallel to its cut edges. Each stitch must be taken exactly opposite the emergence of the preceding one, the emergence of the last stitch being through the skin at a considerable distance from the extremity of the wound. When the distal ends of a suture thus taken are drawn upon, the coaptation is as perfect as the seam in a well-made garment, and nothing further is required in the way of dressings, except the application of the collodion seal, which is rendered still more effective by its reinforcement with a few fibres of absorbent cotton. An aseptic wound thus carefully treated, even to the major amputations, is subsequently very nearly painless, the parts are not œdematous, and the collodion dressing is loosened by the exfoliating epithelium in about ten days. The scar is minimised and is oftentimes scarcely perceptible.

My own experience is now ample to emphasise this method of wound treatment which I, some years ago, first introduced to the profession. Step by step it was carried out, as the result of inductive reasoning on my part, reinforced by my experimental studies upon the lower animals. Happily these methods, which were at first critically considered, as belonging to ideal surgery, have been abundantly confirmed by the experience of many surgeons, and are now advocated as practical, yea even obligatory.

It takes rather longer to close a wound as described than by the methods still too commonly in practice. However, the work of the surgeon is finished when the patient leaves the operating table, and the subsequent nursing is minimised. —*Journal of the American Medical Association, August* 10, 1895, *p.* 225.

52.—TREATMENT OF SPRAINS BY MASSAGE.

By A. Ernest Gallant, M.D., of New York.

[The author reports the results of this treatment in 1,231 recent cases in the service of Dr. Van Arsdale. He gives the method as described by that Surgeon.]

In treating a sprained ankle by massage it is convenient to have the patient lie at full length on a rather low table (from 18 to 24 inches high) upon his back with his head on a pillow, or upon his abdomen, with the flexors of the leg relaxed. The limb should be bared to well above the knee, and no constricting garments should be permitted to interfere with the circulation in the thigh. Examination of the injured joint having been made, the circumference of the limb and the extent of motility noted, the entire foot and leg are next moistened with chloroform-oil uniformly applied by means of gentle rubbing over the entire surface. The gentle touch thus first brought to bear upon the parts has the advantage of reassuring the patient. In applying the emollient care must be taken to arrive at a "happy mean," as too little will result in friction, which will irritate the skin and increase the discomfort of the patient, while an excess causes the hand to slip over the surface, and results in unnecessary waste of strength, an early fatigue on the part of the *masseur*, without accomplishing the desired effect.

Beginning well above the tender or swollen portions of the limb gentle, systematic, upward strokes are carried well above the knee. These first strokes are made with the pulp of the fingers, both hands being used and held parallel with the leg. At first the sides of the leg are attacked, one with each hand; but soon more of the palmar surface of the fingers are brought into contact with the skin of the patient and gradually surrounds the whole circumference of the leg, each stroke being long and slow (not more than thirty to the minute). As the force of the pressure is gradually increased, the pulp of the thumb is brought into play, and the right hand supersedes the other in force and activity until it will become necessary to grasp the lower

part of the heel or metatarsals and make counter-traction in order to steady the limb and permit of a greater development of force.

When the leg by a change of colour from blue to white, shows evidence of depletion of venous blood and lymph, the strokes may begin lower down and more directly over the seat of injury, always being carried upward with the pressure exercised by the fingers—delicate, at first, but with ever-increasing intensity, with the thumb of one hand only, while the other hand steadies the foot in the most convenient position. The tissues, which were hard and resistant to the touch at first, soon become softer and more elastic, and with this the pain at first experienced by the patient grows gradually less and his confidence in the operation increases.

From time to time, whenever the superficial veins of the leg that were first emptied appear engorged or swollen, it is considered imperative to continue the strokes upward to above the knee, and repeat the massage of the upper leg in order to evacuate the newly imported supply of blood and lymph well into the vessels of the thigh, and, as it were, "drive the fluids home." In like manner the toes and the portions below the place of injury are visited and their tissues also are emptied of the stagnant fluids.

The region around the ankle is now considerably smaller, paler, and softer than at first, and the thumb, keeping up the upward stroking all the time, and moving with an independent action against the fingers placed opposite to it on the limb, busies itself finding out the special points around the joint where more marked hardness and stiffness may be felt, and in diving down between the bony projections and tendon-sheaths, while it glides more lightly over the prominences and ridges of bone.

The well-trained thumb is very quick at discovering the points of special soreness, even without the help of the patient's subjective sensations, and will make them special points of attack. When fatigue is experienced the hands are changed and the work carried on with the left. Toward the end of the sèance, which must be indicated by the patient's sensations and condition, the strokes are made to grow gradually more gentle again, and, becoming longer, extend from the foot well up to the knee, more closely resembling those described by some authors as *effleurage*. This procedure always gives the patient a sensation of pleasure and relief, and when the sèance is ended he should be entirely free from pain, at least for a time. If he is not, it is a sign that the massage has not been properly applied. The secondary measurements may be now taken, and if passive motion of the affected joints is considered advantageous this

may now be carried out a limited number of times. The remaining oil may now be wiped from the skin with a dry towel.

A mixture of equal parts ol. hyoscyami coct. (Ph. G.) and pure chloroform has proved the most serviceable lubricant. Rancid oil and impure chloroform should be avoided on account of the disagreeable odour and the resultant dermatitis.

The results obtained have demonstrated the truthfulness of the claims of others, and have shown that the earlier the massage is begun the shorter the time necessary for recovery. Massage the limb twice daily, morning and afternoon, for half an hour at a time. After massage rest the joint for half an hour, and then permit the use of the limb in walking, Elevation of the leg between séances is always advisable. Moist warmth is useless.

[The author concludes by giving the indications and contra-indications for this treatment, and then sums up the benefits derived from it:]

Massage is indicated in subcutaneous hemorrhage (hæmatoma), traumatic joint-inflammations, recent or of long standing, and other late forms of inflammation, such as that from rheumatism, &c.

Fractures at the ankle are not jeopardised by very early massage, but whether or not massage later on (during the first week) is harmful all are not agreed. Immediate massage, on the contrary (if need be, under anæsthesia), permits of a better diagnosis, and in cases with great swelling hastens the union of fragments by removing the blood and exudation between them. If fracture is made out, the massage is not to be repeated. Massage should never be applied in bacterial inflammations, *i.e.*, tuberculous, gonorrhœal, or pyæmic joints.

It is believed that the foregoing statements substantiate the following claims, viz., that massage of sprained joints will (1) prevent swelling, or rapidly disperse it if present; (2) prevent pain, or quickly remove it when due, as it must be, to tension; (3) prevent stiffness, or overcome it when already present from disuse; (4) prevent the sense of weakness and restore the part to its original vigour and strength; (5) reduce the time of treatment from weeks to a corresponding number of days; (6) permit the immediate use of the injured member.

I wish to acknowledge my indebtedness to Professor Van Arsdale for his courtesy in allowing me during the past three years to assist at the Good Samaritan Dispensary, and to compare the methods and results of treating sprains.—*Medical News*, *April* 20, 1895, *p.* 421.

53.—AN ADAPTATION OF THE CIRCULAR METHOD OF AMPUTATING TO DISARTICULATION AT THE ELBOW AND KNEE.

By A. G. Miller, M.D., F.R.C.S.E., Lecturer on Clinical Surgery; Surgeon to the Royal Infirmary, Edinburgh.

[The following is taken from Mr. Miller's paper. The illustrations and some other parts have had to be omitted.]

The circular method of amputating is easy of performance, and has been adapted, with various modifications, to many parts of the limbs; but the procedure which nowadays is most in favour is the single flap—the more cutaneous the better—and this method is the best where it can be adopted. The amputation which I recommend, and which I have employed successfully in several instances at the elbow and knee, secures a long single flap by a circular cut. This may sound somewhat strange and contradictory to some, but will not seem remarkable or in any wise out of the way or contradictory to the experienced surgeon. The whole point and simplicity of the procedure depends on the well-known tendency to contraction of the soft structures on the flexor aspect of a limb, as compared with the extensor, after the tissues are divided. At the elbow and knee this tendency is increased by extending the joint, and thus putting the skin on the flexor aspect on the stretch, while the skin on the extensor surface, is completely relaxed.

The method of procedure is this:—The limb being held out quite straight, a circular incision is made in the ordinary manner below the condyles (1½ inches in the arm and 2½ in the leg), down to the deep fascia. The skin on the flexor aspect (anterior in arm and posterior in leg) at once retracts considerably, making the line of incision oblique. Two small incisions are now made from immediately below the condyles to the original cut. The flexor flap will now still further retract, and, aided by a few touches of the knife, will almost disappear. The extensor flap is now dissected up as far as the head of the tibia in the leg, and to above the olecranon in the arm, care being taken to cut on the deep fascia, and so to reflect the subcutaneous cellular tissue and its contained bloodvessels along with the skin. This flap is loose and ample, being taken from a part where the skin is naturally redundant in order to accommodate itself to the normal action of flexion. After reflexion of this flap—practically the only one—disarticulation should be performed (on the arm and knee both) from the front, the patella being saved in the latter case. It will then be found that there is a long flap on the extensor aspect, with practically no flap at all

on the flexor aspect of the condyles. After the bloodvessels are secured and the nerves drawn out and cut short, this single flap folds nicely over the condyles, being, indeed, in its natural place, and is easily secured by stitches. When healing has taken place, the appearance of the stump is very natural and most satisfactory.

This amputation—as will, I suppose, be readily admitted—is a single cutaneous flap operation. I need not attempt to go over the old arguments that were brought forward long ago to prove the advantage of the long single flap when it can be got. I take for granted that the single cutaneous flap is the best when it can be got. I take for granted also that disarticulation at the elbow and knee is better than amputation above these joints. The old objections to leaving articular cartilage and synovial pouches no longer hold, for since the introduction of antiseptics, suppuration of an amputation wound is rare. Most authorities on operative surgery in the present day rather favour a return to a disarticulation because it is simple, does not necessitate the use of a saw, and provides a longer and better stump than any amputation higher up. The method of disarticulation that each recommends, however, varies considerably.

The two lateral incisions which I make after the circular cut are the same as introduced by Mr. Syme when he first practised his modification of the circular amputation. He found it difficult to dissect up the skin after the first circular incision (modern "cuff" reflection method), because the dissection was made from a narrower to a broader part of the limb. He therefore made two lateral cuts to let the skin be more easily turned back. This suggested to him the method of two semilunar flaps. I employ the two lateral cuts for a different purpose. In the first place, they define the extensor and flexor flaps from one another, while at the same time they aid materially the reflexion of the former and the retraction of the latter. In this way the distinction and contrast between the two flaps is made more manifest, the great retraction of the flexor making the looseness and length of the extensor flap very marked. Indeed, the latter looks exactly like a flap formed on the Teale method.

As I have already indicated, the circular incision requires, at the elbow, to be made only about $1\frac{1}{2}$ inches below the condyles. It is necessary, of course, to have enough flap to cover the condyles. If you make a mark round the forearm $1\frac{1}{2}$ inches below the condyles, with the arm extended, and then flex the elbow completely, it will be seen that the anterior portion of the line has slipped up on to the upper arm, while the posterior portion comes up above the level of the condyles, even with the

olecranon in position—which of course, is dissected out in disarticulation. It is quite evident, therefore, I think, that a low amputation or much skin is not necessary for this operation, and that therefore it is likely to be useful and appropriate in many cases.

In regard to disarticulation at the knee, the favourite methods are the long anterior and two lateral flaps. My method provides a long anterior flap with practically one cut (the two small lateral incisions might be dispensed with), and with little trouble, in the way of measurement. Besides, the point at which the circular cut is made is not so low as that necessary in Stephen Smith's lateral flap operation by at least an inch. The method should therefore be more suitable than either the long anterior or bilateral methods. The one point of importance is to have the leg fully extended, for by this means provision is made for looseness and length in the anterior flap, and immediate and considerable retraction on the posterior aspect.

I have made the condyles (humerus and femur) the points from which to measure in making the incisions, because, in performing disarticulation at the knee and elbow, I keep always before me that I have got to cover the condyles, or else to saw them off. If my flaps turn out long enough, disarticulation is sufficient. If, however, my flaps do not cover the condyles properly, some portion of the latter must be sacrificed. Keeping this in view, it is not difficult generally to gauge the amount of skin necessary, and the exact point at which it is safe to apply the knife.

The cicatrix in a circular amputation is said to be usually central, and to be apt to adhere to the end of the bone. In this modified circular amputation the cicatrix is not, and cannot be, central. It is well up on the flexor aspect neither is there any chance of its becoming adherent to the bone. This result is due, as has been demonstrated, to the unequal retraction of the soft parts that takes place on the flexor and extensor aspects. And this inequality is made certain by fully extending the joint before the circular incision is made. Let it be remembered, at the same time, that the primary incision being circular, a certain amount of skin is provided on the flexor aspect to meet the great tendency to retraction and that, consequently, a very great amount of skin is not so necessary on the extensor aspect. The method is practically a utilisation of the natural tendency to unequal retraction of the soft parts at the elbow and knee to frame a long anterior flap, by the simple peformance of one circular and two short lateral cuts. The latter are not made till a certain amount of retraction has occurred, and therefore are very short.

In advocating the employment of this modified circular amputation at the elbow and knee, I do not for a moment suppose that I am suggesting a new method. What I am recommending is simply an adaptation of an old method. It has, I believe, the following advantages besides the ordinary well-known and recognised advantages of a single long skin flap, and of disarticulation :—(1) the procedure is simple, being easily and quickly performed, and there are no elaborate details to remember; (2) the skin flap from the extensor aspect is well accustomed to pressure and to the situation in which it is ultimately placed over the condyles; (3) the cicatrix is in a most favourable position; (4) much tissue is not required. The operation is therefore suitable for both primary and secondary amputations.—*Edinburgh Medical Journal, July*, 1895.

54.—CLINICAL STUDY OF SOME OF THE MORE IMPORTANT FORMS OF ABSCESS.

By Howard Marsh, F.R.C.S.,
Surgeon to, and Joint Lecturer on Surgery at,
St. Bartholomew's Hospital, London.

[A paper on this subject was read before the Harveian Society. This report is taken from *The Medical Press and Circular, April* 17, 1895, *p.* 410.]

The author began by stating that his view that, when pus was known to be present in a part, it should be evacuated without delay; for not only was it an excretion—something which was outside the pale of the economy and which could serve no useful purpose, but it did mischief in many ways—by producing tension in acute cases, and in chronic cases, by burrowing, and by leading to the formation of pockets and tortuous passages lined with granulation tissue, which maintained suppuration, and which, moreover, were often tuberculous. Pus also produced erosion of adjacent structures, and might make its way into (*a*) the large joints, (*b*) the large bloodvessels. He showed nine specimens from the museum of St. Bartholomew's Hospital illustrating this formidable accident. These included instances in which the three carotids, the thoracic, and the abdominal aorta, the external iliac, and the femoral had been opened by abscesses, and he had known the gluteal and the internal pudic similarly involved. Indeed, there was probably no large artery in the body which had not been opened in this manner. The occurrence was very likely to be fatal. Sometimes the abscess concerned was quite small.

As to diagnosis, the author remarked that though fluctuation was usually depended upon as the evidence that matter had formed, it was a symptom that was available in only a minority of cases, namely in large chronic abscesses. It postulated several conditions which in acute abscesses were often absent, viz., a sufficient quantity of pus to admit of to and fro displacement, and a firm background, pliant superjacent soft parts, superficial position, and absence of great tenderness. In numerous instances of acute abscess one or several of these conditions were absent. The indications then to be depended on were (*a*) elasticity, (*b*) pitting on pressure, (*c*) the tender spot, (*d*) the soft spot. Attention was then directed to particular abscesses. Acute abscesses of bursæ should be evacuated before the wall burst and pus was widely extravasated; in glands before the capsule burst and the surrounding connective tissue and skin were involved. A very formidable abscess was that beneath the gluteus maximus, which might follow disease of the lumbar spine, the hip-joint, or the sacro-iliac articulation. The great difficulty was that pus burrowed widely under the muscle, and that adequate drainage could not be secured. He had known four such cases fatal. Another abscess very likely to produce serious difficulty was the post-mammary. Here wide burrowing occurred, and sinuses obstinately refused to heal. He had met with two instances in which the breast had been removed, all other treatment, including free drainage, scraping, and prolonged rest having failed, after long trial, to secure sound healing. A third variety of abscess referred to was that which follows either tuberperiostitis of a rib or the periostitis of a rib sometimes met with (as Sir James Paget had described) after typhoid fever. In these cases the abscess is often situated behind the ribs, and can be reached only through an intercostal space. He had lately met with two instances in which a large flattened abscess cavity was found between the costal cartilages and the pleura, in the immediate vicinity of the internal mammary artery. In such case the lining membrane of the abscess must be completely cleared away, drainage provided, and rest and perfect asepsis maintained; otherwise burrowing will continue, and, as he had several times seen, separation of the cartilage from the rib will probably occur. A fourth variety of abscess sometimes leads to a condition the exact explanation of which was apt to escape recognition. When a deposit of tubercle occurred in the deeper strata of the subcutaneous tissue wide undermining of the integument might occur, and one or more sinuses might form which obstinately refuse to heal. A boy was lately in the hospital who had two sinuses of long duration in the occipital part of his scalp. The scalp was undermined over an area four inches in diameter. The pus

contained tubercle bacilli. The undermined scalp was freely divided, so that the whole cavity was exposed. All the granulation tissue was scraped away and the flaps were readjusted. The parts now healed. Similar examples had been met with in the leg (so that the affection closely simulated necrosis of the tibia), in the fore-arm, and in other parts. The diagnosis is easily made by finding that the sinuses present nowhere pass beyond the subcutaneous tissue—none pass through the deep fascia, or traverse the periosteum ; and by observing, also, that wide undermining in a horizontal plane has occurred. The treatment consists of complete exposure of the whole cavity, thorough scraping and careful readjustment, and the use of uniform pressure.

55.—TREATMENT OF TUBERCULOUS ABSCESSES.

By William J. Taylor, M.D.,
Professor of Orthopædic Surgery in the Philadelphia Polyclinic ;
Attending Surgeon to St. Agnes's Hospital, &c.

The best method of treating tubercular abscess, especially abscess following in the course of hip-joint disease, is a subject of great importance, and well merits a free and full discussion. There are three plans commonly employed, each differing essentially in detail and theory, and each strongly advocated by men of experience and wide reputation. In attempting to discuss a question about which such widely-diverging views are held, it is necessary that we give due prominence to and respect for the opinions of these men.

The first plan commonly employed is that of doing nothing at all surgically, but to sit calmly by and allow the abscess to do as it likes, and, after burrowing extensively under the tissues, to burst and discharge its contents at nature's own point of selection. Those who advocate this expectant plan of treatment claim that the place of spontaneous discharge is the most favourable point for drainage for that particular abscess, that the wound is smaller, and the prospect of rapid closure better. They contend that a tubercular abscess is really not an abscess in the true acceptation of the term, for the germs of suppuration are not present ; that by opening the cavity with a knife we run the risk of carrying infective material into it, thus setting up a second and suppurative process with all its attendant dangers ; and, further, that the probabilities of infection during the dressings are very great. We must admit also that tubercular abscess, if small, will occasionally become absorbed

and disappear, or, at least, become quiescent. There is, however, the ever present danger of their contents becoming irritated, and a lighting up of the old trouble resulting, not to speak of the possibility of general systemic tubercular infection.

The second plan is that advocated by those who believe nothing should be done till the abscess is large and its walls thin. At this stage the cavity is to be aspirated, all of its contents, as far as possible, removed, the cavity washed out through the aspirator with some form of mild antiseptic fluid, and then injected with a solution of iodoform in oil or glycerine. This latter is used for the purpose of bringing the iodoform in contact with the whole inner surface of the abscess wall, and in the hope of destroying the tubercle bacilli in the lining granulation tissue. As yet we have no agent which destroys these germs so well as iodoform. We are often able to gain the consent of patients and of their parents to do this when more active surgical interference will not be permitted. It must be borne in mind that this procedure is not without grave danger to the life of the patient, for we inject large quantities of iodoform into a closed cavity, and I have several times seen violent poisoning occur.

My own experience of this method of treatment has not been encouraging, as I cannot recollect a single case where its use was perfectly satisfactory. I admit, however, that others have been successful and strongly advocate this method. They contend that if the first injection is not successful it should be repeated once, twice, or three times if need be at various intervals of time, and that at each injection the size of the cavity is lessened and the amount of iodoform necessary to be used smaller. I do not believe it possible, however, to remove through the small needle of an aspirator the cheesy masses and broken-down tissue which we always find present in these cases, and I have found it necessary in a short time to open such abscesses by a free incision and clean them out.

The third plan, and that which I have found to be the best, is to treat the abscess on true surgical principles, just as we would a collection of pus in any other form, but with the understanding that we are dealing with a condition where there are no germs of putrefaction. This is by free incision, thorough curetting of the walls of the abscess cavity while the wound is being flushed with plain boiled sterile water, and then complete closure of the wound in the skin without drainage. This plan I have found most useful in all forms of tubercular abscess.

The surface of the abscess is rendered aseptic for twelve or twenty-four hours before the time set for the operation by the following method :—(1) The skin is washed well with green soap by means of a nail-brush ; (2) ether is then used to remove all

oil from the skin ; (3) a solution of bichloride of mercury is then used of the strength of 1 to 2000, and a sterile dressing wet with the same solution is then applied and allowed to remain in contact with the skin until the patient is under the influence of the anæsthetic at the time of the operation. An incision is then made into the abscess, which should be long enough to permit of the exploration of its cavity by the finger of the operator, the length of the incision, provided it be free, being of small moment. Next, the wall of the abscess cavity is to be thoroughly curetted with a Volkmann's spoon if the tissues are dense, and then, with what I find most efficient, a mass of sterile gauze held in a pair of forceps. This gauze curette is not new, but is not used as often as it should be, for it can be used in cleaning out the cavity of a pelvic abscess as well as the more superficial ones and the danger of injuring the peritoneum is slight. Of course, in all curetting the amount of force to be used must depend upon the character of the tissues involved and of the proximity of important structures. In this way all of the granulation tissue containing the tubercle bacilli is scraped away and little or no violence is done to the sound structures, while a large mass of material is removed which can be gotten rid of in no other way. Gauze used in this way to swab out the wound is efficient ; it is safe, for unless very exceptional force is used it can do no harm to blood-vessels and other delicate structure, and where a metal curette would do much damage. During all the time the swab is being used a stream of plain boiled water is flowing into the wound and washing out the broken granulations and shreds of tissue. This stream of water constantly flowing I consider of the greatest importance, as it enables us to get rid of much tubercular matter that would otherwise escape our notice and remain in the wound.

After the cavity is thoroughly cleaned out and the return flow of the water is clear, the wound should be mopped dry with sterile gauze sponges and closed with silkworm-gut sutures. No drainage whatever should be used, and in a great many cases we can get primary union of the wound. Halsted's subcuticular suture of silver wire or silkworm gut answers admirably, and prevents the possibility of infection from the skin. At times there will be a small accumulation of wound discharge which will burst through the line of incision at some one point, but as soon as this fluid is liberated the healing process goes on without interruption.

The tendency in all tubercular wounds is to the formation of sinuses, and I consider the use of a drainage-tube in these cases objectionable as tending to their formation. If, however, the abscess be very large, this is especially applicable to abscesses of the trunk and much less so to the hip, where it has been

found impossible to reach every part of the cavity with the gauze curette, a drainage-tube may be used to get rid of the wound discharge for the first twenty-four hours, but under no circumstances where rapid union is expected should the tube be allowed to remain in position for a much longer period of time. If primary union be not secured, this method of treatment enables us to thoroughly clean out the abscess cavity, to rid it of the broken-down tissue and the products of tubercular inflammatory processes, and with the certainty of the removal of a large number of tubercle bacilli. If these bacilli are allowed to remain in the tissues, they may very readily become the source of a general systemic infection. At the same time we lessen the size of the abscess cavity, diminish the amount of wound discharge, and enable healing to take place much more rapidly. Certainly this is the most satisfactory method of treating these cases which I have yet undertaken, and gives most gratifying results in the vast majority of cases, while, at the same time, the comfort of the patient is much increased.—*Annals of Surgery, July*, 1895, *p.* 104.

56.—THE SURGICAL ASPECT OF TUBERCULOSIS.

By Frederick Treves, F.R.C.S.,
Surgeon to, and Lecturer on Surgery at, the London Hospital;
Examiner in Surgery at the University of Cambridge.

[The following is taken from an address delivered before the Manchester Medical Society, October, 1895. The part of the address given below deals with the more strictly surgical treatment of tuberculosis.]

With regard to the local or surgical treatment of tuberculous affections, it is interesting to note the changes which have taken place, and which are still taking place, in connection with this department of practice. The time is not very far distant when tuberculous or scrofulous troubles were considered to be unsuited for surgical treatment. Then came the great surgical revival, and tuberculous affections were attacked in common with nearly all other disorders which presented any local manifestations. There is no doubt but that in a while the pendulum swung too far in the opposite direction. From the position of not treating tuberculous affections at all, it proved to be a short step to the position of treating them too much. Now, I think, the mean is being arrived at, and the surgical treatment of tuberculous affections is becoming free of extremes.

This is strikingly illustrated in connection with the care of tuberculous joints, such as the hip and knee. The first care is to place the patient under what the student in his examination paper delights to call "favourable hygienic conditions." I am quite aware that among poor patients this is not always possible. Then the joint is placed scientifically at rest. The thigh—if the disease be at the hip—is not abruptly forced into a stereotyped position which the surgeon declares to be one of rest, but which in reality is one of discomfort and one in which the tension within the joint is increased. The limb, on the contrary, is gently induced into the natural position and kept there. Under the treatment by perfect rest, in as nearly as possible perfect conditions, the majority of cases of tuberculous joint disease get well. By so much as the surroundings are imperfect, by so much is that majority reduced. If an abscess form in connection with the hip, and if that abscess be treated upon general surgical principles, again it may be said that the majority get well. As an evidence of this, must be cited joint disease among the better classes.

This is a very different story from the one told but a few years ago. It was assumed that the majority of cases of joint disease went from bad to worse. There was some truth in the assumption, and amputations were common. Excisions, mainly of the knee, were commoner. Mr. Holmes, writing in 1880, gives the results of 245 cases of excision of the knee performed in certain hospitals in London during five years. It would be interesting to know how many excisions of the knee for active tuberculous disease are performed in London per annum at the present time. A distinguished surgeon, writing in 1892, states that "when a well-marked case of pulpy disease has lasted over six months it is not worth while, in the interests of the patient, to attempt the conservation of the joint for a longer period." This was written in connection with excision of the knee.

There was a time, not so many years ago, when in the opinion of some surgeons, excision of the hip or knee should be performed as soon as the diagnosis of tuberculous disease was established. Even by this time so-called "primary excisions" are more or less matters of the past. It was furthermore urged in connection with hip-joint disease that as soon as an abscess appeared an excision should be carried out. It would, I think, be safe to predict that that verdict will not be confirmed in the immediate future. The excellent operation of arthrectomy, for the elaboration of which surgery is largely indebted to Mr. Wright, of Manchester, is becoming wisely restricted in its use. Instead of being more frequently employed, it is, I believe, less frequently employed, and it has become quite manifest that it is not suited as a routine

treatment in even one particular phase of joint disease. Mr. Howard Marsh, in his recent work on "Joint Disease," gives an excellent review of the present position of surgical feeling upon this subject, and in contrast to the literature of the time when excision (or, later on, arthrectomy) was almost a routine measure, his account shows a singular change in surgical practice.

In the treatment of tuberculous gland disease there was a great leap from doing nothing to doing possibly too much. The treatment of tuberculous glands of a certain grade by complete excision is in every way most excellent, and has been attended with the best results. But here, again, there is evidence that it is possible, in adopting a new measure of treatment, to run into extremes. It has been assumed by not a few that the only treatment of tuberculous glands is by excision, and I have heard the claim advanced that as soon as it is evident that a gland is tuberculous it must be removed. Those who urge this claim assert that there is no other course open, and that disaster will follow if an operation be not at once performed. This pressing of an admirable measure to an extreme and irrational use is tending to bring a most useful operation into discredit. It may be safely asserted that certain cases of tuberculous gland disease recover, and recover well, without operation: and, also, that there are instances of gland trouble, especially when extensive and in adults, which are not suited for operation. In the treatment of gland disease two matters call for early attention. In the first place, it is essential that the periphery be examined, and any exciting cause be dealt with, as a primary feature in the treatment. There may be discovered some eczema of the scalp, or some discharge from the ear, or some nasal catarrh. In many instances there are enlarged tonsils, or post-nasal growths, or some ulceration within the mouth, or some wholly carious teeth. It is of little avail to attempt to treat tuberculous glands when the tonsil from which they have been infected is left untouched. As a second element in the treatment the part must be kept at rest. This is generally insisted upon when the enlarged glands occupy the axilla or the groin, but it is seldom urged when the trouble is in the neck. Yet the neck is in almost constant movement, and when the glands are beneath the sterno-mastoid muscle they are subjected to continual disturbance. Until the neck is fixed the great essential in the treatment of inflamed parts is ignored.

In very many cases there is no measure for the diseased glands but removal, but this measure is likely to fall into disrepute if it become an article of faith—as it is with some—that the only treatment of a tuberculous gland is by immediate operation.

It is sometimes promised to the patient that the scar left by the operation upon the glands will be quite insignificant, and, indeed, a mere white line which will compare in a startling manner with the hideous scars left by "nature." Surgeons, on the other hand, who have seen much of these operations, will not be disposed to lay too much stress upon the invariable fineness and invisibility of the cicatrix left by art.

When we turn to the treatment of tuberculous testis, it will be found that the fashions in treatment have followed some such lines as the following: In the early days the trouble was condemned as "constitutional," and left alone. Later on the testicle was removed when it and the scrotum were hopelessly disorganised. It was evident that these operations were done too late; and then came the advice that the whole organ should be excised as soon as suppuration made itself evident. Certain of these operations were certainly too early. Now, perhaps something like the right mean has been arrived at. The patient is placed under as favourable conditions as are possible, and the moment any point of softening appears in the epididymis, it is well opened up, well scraped, and well plugged with iodoform gauze. What is the result of this measure? In common with many other surgeons, I can cite an encouraging series of cases in which this simple plan of treatment has led to a complete cure, with loss of substance, no doubt, but without loss of the essential part of the organ.

It is, however, in connection with the treatment of spinal and other tuberculous abscesses that the contrast between the treatment of the past and the present is the most striking in its results. Not many years ago a psoas abscess was rightly considered to be a very fatal thing. The abscess usually presented below Poupart's ligament, and was allowed to break, or was opened in a faint-hearted manner. Then followed the disastrous train of results due to inadequatee vacuation of the morbid products, inadequate drainage, want of suitable rest to the parts, and the inevitable introduction of sepsis. The majority of patients died, and among adults especially the results were most deplorable.

At the present time the position of affairs is much altered. The actual steps of the operative treatment differ a little with different surgeons. The proceeding I have adopted myself is the following:—The abscess is reached through the loin by the route I ventured to advocate in a paper read before the Royal Medical and Chirurgical Society in January, 1884. By this incision the abscess is opened as near as possible to the seat of disease. The spine, over a limited area, can be examined, and now and then diseased bone can be removed. The largest sequestrum I ever removed involved the greater part of the body of the first lumbar vertebra. Cases associated with such

large sequestra are, however, quite rare. Now and then a surface of carious bone can be scraped. When the abscess has been evacuated, suitable sharp spoons are introduced, and the lining wall of the cavity is carefully and thoroughly scraped until the whole surface has been laid bare. During the process the cavity is repeatedly flushed out with warm sterilised water, which, at the London Hospital, comes direct from a Berkfeld filter. Septa are broken down with the fingers, and diverticula opened up. The amount of pus, cheesy matter, and membrane removed is often surprising. When the cavity is clean it is well dried with Turkey sponges on holders, which serve to remove what remains of the *debris*. Finally, a little iodoform emulsion is introduced, and the wound then closed. In spite of the contradictory evidence furnished by laboratory experiments, it certainly does appear, from clinical observation, that iodoform has a specific effect upon tuberculous lesions.

The well-to-do patient passes his convalescence on a spinal carriage in the open air, be it winter or summer. The cavity left by the operation is more like that left by the removal of a very large tumour, such as a lipoma. It does not behave as does the wall of an ordinary septic abscess, and the healing is very usually immediate and complete. This peculiarity in the inflammatory phenomena with which tuberculosis is associated is well illustrated by the manner in which tuberculous peritonitis responds to operative treatment. In a series of 308 cases of tuberculous peritonitis treated by laparotomy, there were 74 deaths; the mortality due directly to the operation being only 2·5 per cent. Those cases did best in which the operation consisted of little more than a free incision, and in which there was neither flushing of the abdominal cavity nor drainage. I think it may be said that in no non-tuberculous inflammatory condition is a parallel to this to be met with.

Such, in very brief and imperfect outline are some of the changes which have in recent years concerned the relation of the surgeon to tuberculous disease. These changes have taken place along leisurely lines, and have been so far free from abrupt and startling departures, that it is only when they are passed in review that the magnitude of their meaning is made evident.—*The Medical Chronicle, October*, 1895, *p.* 1.

57.—ON THE INCREASE OF CANCER.

By W. Roger Williams, F.R.C.S.

[The importance of the subject of this paper is too obvious to need emphasising. If the deductions were only partially correct, and fallacies are apt to creep into all statistics, yet there would

be ample reason for the investigations referred to by Mr. Roger Williams. While the efforts made towards successful treatment have been great, this malignant disease stands out as almost the single instance among the more common diseases in which practically nothing has been done towards prevention. As it will be seen from the *Synopsis*, attempts both at a serum as well as a bacteriological treatment have been made of quite recent times, but while the real cause of the disease remains absolutely unknown, little can be expected of it. All efforts should unquestionably be made towards the discovery of the actual cause of this terrible scourge.]

I propose briefly calling your attention to the continuously progressive increase in the cancer mortality that has now been going on for over half a century. Its extent is shown by the following table :—

Year.	Total Population.	Total Deaths.	Cancer Deaths.	Cancer Death Rate per Million Living.	Proportion to Population.	Proportion to Total Deaths.
1840	15,730,813	359,687	2,786	177	1 to 5,646	1 to 129
1850	17,773,324	368,995	4,966	279	1 ,, 3,579	1 ,, 74
1860	19,902,713	422,721	6,827	343	1 ,, 2,915	1 ,, 62
1870	22,501,316	515,329	9,530	424	1 ,, 2,361	1 ,, 54
1880	25,714,288	528,624	13,210	502	1 ,, 1,946	1 ,, 40
1890	28,762,287	562,248	19,433	676	1 ,, 1,480	1 ,, 29
1891	29,081,047	587,925	20,117	692	1 ,, 1,445	1 ,, 29
1892	29,405,054	559,684	20,353	690	1 ,, 1,445	1 ,, 27
1893	29,731,100	569,958	21,135	711	1 ,, 1,407	1 ,, 27

The state of affairs thus revealed is of grave import. It seems certain that, if unchecked, cancer will ere long become one of the commonest diseases of modern communities. Even now cancer causes more than four times as many deaths as typhoid fever; but while Medical Officers of Health devote so much attention in their reports to the latter disease — which is decreasing—they hardly ever even allude to the former, and I believe they consider cancer outside their sphere. It is necessary to speak plainly on this subject, because the bulk of the profession and the general public, owing to the prevailing indifference, have but a very inadequate idea of its importance. It is high time that this neglect should cease. The subject is one that requires prompt and thorough investigation on a larger scale than can be undertaken by any individual. It is a matter of national concern.

Perusal of the lately issued report of the Registrar-General, which shows that the cancer death-rate has yet again surpassed

every previous record, has induced me to bring the subject forward, although the remarks I have to make are but a repetition of what I have previously stated.

In 1840 cancer caused 2,786 deaths, the proportion being 1 in 5,646 of the total population, 1 in 129 of the total mortality, or 177 per million living. In 1893 it caused 21,135 deaths, the proportion being 1 in 1,407 of the total population, 1 in 27 of the total mortality, or 711 per million living. Thus the proportionate mortality from cancer now is more than four times greater than it was about half a century ago. I calculate that there cannot be fewer than 42,000 persons now suffering from cancer in England and Wales; whereas, in 1840, the number was only about 5,500. In this respect its position is unique—no other disease can show anything like such an immense increase.

This continuously progressive augmentation of the cancer death-rate cannot be accounted for by mere increase of population, as is evident from the fact that its rate of increase has proportionally been much in excess of this; and there is far too much uniformity in the variations of the increments of increase in the long succession of years to warrant its being ascribed to improved diagnosis or other casual error. Moreover, as I have elsewhere shown ("Diseases of the Breast, with special reference to Cancer"—London, 1894, p. 281), the increase has not been confined to one or a few parts of the body; but it has involved them all—on the whole without any considerable disturbance of the normal proportionate localisation ratios. Lastly, the increase has been diffused over the whole country, instead of being limited to certain areas only; so that those parts that formerly had the highest, lowest, and average cancer death-rates, still preserve their distinction in these respects, although the cancer mortality has everywhere augmented. There can, therefore, be no doubt as to its reality.

The attempt to explain this sinister increase as due to the average age of the population having advanced, and the consequent liability of greater numbers, will not bear critical examination, for the saving of life in modern times has been almost exclusively confined to early years. The death-rates of males over 35 and of females over 45 have actually increased, while the numbers that attain old age have decreased. This increased mortality at post-meridian ages is no doubt largely due to the survival in augmented numbers of weakly lives, artificially prolonged by improved conditions of existence; but, according to Dr. Newsholme, not more than one-fortieth of the increased cancer mortality can be thus accounted for. Besides, it is a mistake to assume that increased cancer mortality is a necessary corollary of the survival of augmented numbers to

the cancer age. The average age of the Irish population is much higher than that of the English or Scotch; yet the cancer mortality of Ireland is far less than that of either England or Scotland. Hence it is doubtful whether the higher age of the agricultural, as compared with the industrial population, in any way explains the greater proneness of the former to cancer.

In conclusion, I must direct attention to the remarkable decline in the death-rate from phthisis and other tubercular diseases that has coincided with this great increase in the cancer mortality; while the latter has more than quadrupled during the last fifty years, the former has diminished by more than one-half. The latest ascertained cancer death-rate is the highest on record, while that for tubercle is the lowest. I regard this decline in the prevalence of tubercular disease as the outcome of improved hygienic conditions, due to that augmented national prosperity which, as I have elsewhere endeavoured to show, by its action in another direction, is also responsible for the increased cancer mortality. Thus there appears to be some truth in the curious paradox that a high cancer mortality is an indication of good sanitary conditions.—*The Liverpool Medico-Chirurgical Journal*, *July*, 1895, *p.* 506.

[From a paper read before the Lancashire and Cheshire Branch of the British Medical Association.]

58.—ON THE CONDITION KNOWN AS THE TYPHOID STATE.

By Norman Hay Forbes, F.R.C.S.Edin., formerly of the Medical Staff of H.M. Army, Medical Officer to Tunbridge Wells Dispensary.

[The following is a continuation of the article on p. 145, and considers the typhoid state as it may occur in surgical diseases.]

In the domain of surgery, the examples of the "typhoid condition" can be for the most part roughly divided into those occurring in (1) any acute inflammatory condition associated with marked pyrexia and profound disturbance of the nervous system, and (2) those occurring in long-standing and in some of the more chronic forms of constitutional disease associated with the sudden onset of acute and consequently grave symptoms, the result in the main of either absorption of the organised chemical products of decomposition (septicæmia) or of chronic suppuration, or of a series of symptoms directly referable to the nervous system "broken down" and exhausted by prolonged suffering. I will specify somewhat in detail. Under

the secondary constitutional effects of injuries or of operations and of some diseases there occurs that most important clinical feature known as "surgical" or "traumatic" fever, which implies a general disturbance of vital processes and functions as well as of the thermo-genetic equilibrium. In those cases in which this fever assumes what is termed an "asthenic" or "adynamic" type, there is afforded a typically developed example of the "typhoid state," a condition in which the terms "typhoid" and "asthenic" are almost synonymous. This form of "asthenic" pyrexia is seen in patients whose general health, constitution, and vital powers have been severely undermined by excesses of various kinds, more especially by alcoholism, by privations, and by any or all of those depressing causes in any disease acting consecutively. In this condition the temperature is not *per se* a cardinal feature, as it may be high or comparatively low, the chief points being the complete exhaustion of the nervous centres, a feeble, failing, irregular pulse, shallow respiration, extreme muscular weakness, and a dry, brown tremulous tongue. Another instructive instance of "typhoid" symptoms setting in occurs in one or other of the various forms of septicæmia, whether this be the outcome of septic infection, septic "intoxication," or embolic pyæmia (which is septicæmia *plus* metastases). In this septicæmic condition all the leading characteristics of the "state" are found—low, muttering delirium, flickering pulse, stupor, &c. It is a well-known fact that in all "infective" or "septic" inflammatory processes the symptoms frequently and almost imperceptibly merge into an "asthenic" type, this general asthenia of motor, sensory, and psychical power thus producing a "typhoid" condition. In another group of cases, such as those of chronic catarrh of the bladder (chronic cystitis), with thick, copious, muco-purulent secretion, the patient sometimes sinks, without strength and "worn out," the closing scene being characterised by a "typhoid" condition. In such an example, in all probability, two distinct factors are at work in bringing about a fatal issue, viz., (1) the constant exhaustive drain effected by long-continued reflex irritation on the nervous system ; and (2) the chemical changes occurring in the urine, in the blood, and in the exudative discharge from the vesical mucous membrane, and in the combined effect on the excretory organs, and indirectly on the general nutrition of the body. This condition is also observed in the third stage, that of pyrexia with exhaustion, in dissection or in post-mortem wounds (*piqûres anatomiques*), where the subtle and rapid absorption of the necrotic virus, and its still more alarmingly rapid multiplication and chemically toxic power within the system, have the baneful effect of establishing an intense depression and disturbance of the functions and

influence of the nerve centres, ending in a destruction of their vital force and power. Cases of diffuse celullitis can be recalled—the "diffuse phlegmon" of Dupuytren—where, in a previously debilitated system, severe constitutional disturbance supervenes, and a train of "typhoid" symptoms sets in. This is also the case in examples of acute spreading gangrene, a condition in some aspects allied to chronic septicæmia, in which the absorption of the chemical products of disintegration and putrefaction has from first to last a toxic and seriously injurious effect. The condition has also been noticed in wide-spread burns of the fourth and fifth degrees. Another instance of the "typhoid" phenomena occurs during an attack of "delirium tremens," the result of hard drinking, when marked signs of exhaustion of the nervous system set in with failure of functional power, and again in those cases of "nervous traumatic delirium" which not infrequently arises in patients with an "irritable" and somewhat unstable nervous system, or in those who have suffered from prolonged mental anxiety and the enervating effect of worry and over-strain. If the patient be the subject of an almost impermeable organic stricture, and if unrelieved retention exist, and if, in consequence of the rupture of the dilated portion of the urethra which is immediately behind the seat of such a stricture, extravasion of urine takes place, the united effects of such a condition, both local and general, give rise, on the one hand, to the most deleterious consequences to the tissues themselves, and, on the other, severe constitutional disturbance; "typhoid" symptoms rapidly supervene, in which muttering, quasi-insensible delirium, a small and rapid pulse, and dry, brown, and cracked tongue, form the most prominent features. Clinically allied to the foregoing condition, and in natural sequence, is the disease described under the term "acute, diffuse, interstitial, suppurative nephritis," associated with multiple scattered abscesses ("surgical kidney") in which the patient sooner or later sinks into a heavy, drowsy state, "typhoid"-like in character, and succumbs within a comparatively short time from poisoning by absorption of septic matter and waste products, a condition of uræmia, and close resembling chronic pyæmia or septicæmia. Lastly, one observes the development of "typhoid" symptoms in cases of acute traumatic meningitis and encephalitis, complications of some injury inflicted on the skull and the structures contained within it. In these cases, with an open wound of the head, infection readily and often insidiously takes place unless more than ordinary care is exercised to prevent the establishment of a condition of sepsis. If, however, septic meningitis has taken place there is a speedy exacerbation of the general symptoms, especially the temperature, which mounts up to 104°F., concurrently with

restlessness and delirium, which, if symptoms of compression coexist, passes into that drowsy, stupefied type, the breathing becoming stertorous, the pulse feeble and failing, and the patient succumbs in an exhausted condition from the dual effect of failure of the nervous system and compression. In the intra-meningeal form of intra-cranial suppuration which is occasionally associated with pyæmia "typhoid" phenonema appear towards the close of the case. In the days before attention was definitely directed to hygienic conditions in relation to surgical procedures, cases not infrequently occurred where anæmic, cachectic, and debilitated patients, crowded together in a small, ill-ventilated ward, suffered from languor, headache, "continued fever," and similar symptoms indiscriminately passing into an "adynamic" or "typhoid" condition, which was in part due to the poisonous effects of an excess of carbon dioxide, gases of decomposition, and organic impurities in the air of the ward, and in part to the absence of sufficient air space per bed. Another important consideration in connection with the development of the "typhoid state" during the course of any disease lies in the fact that in overcrowding and the continued inhalation of a vitiated atmosphere there is a marked prevalence of diseases of the respiratory tract, such as phthisis, pneumonia, and bronchitis, all of which, under the above-mentioned conditions, have a tendency to assume an "adynamic" type closely allied to the "typhoid state." Of the 23 survivors of the Black Hole of Calcutta many suffered from a condition which is designated under the term "putrid fever, probably allied to typhus fever, in which "typhoid" symptoms were well marked. An example of the supervention of such symptoms is also met with in animals in severe cases of "foot-and-mouth" disease, in which there is much fever, prostration, and thirst, these symptoms being the more pronounced in sucking animals. Writing on the "typhoid condition," Tweedie states that "it is announced by the decline of the previous more acute symptoms; by the pulse becoming more rapid and soft; the tongue dry and brown, tremulous, and protruded with difficulty; by the incrustation of the teeth with sordes; by the increasing intellectual disorder, indicated by the more constant low, muttering delirium, and the greater insensibility and deafness; and by the condition of the muscular system evinced by muscular tremor and subsultus tendinum, and in some cases irregularity or intermission of the pulse; by the patient lying sunk on his back or sliding to the foot of the bed, the muscles being unable to support the body even in the horizontal posture." Milner Fothergill reviewed this subject under the following considerations:—(1) the association of high temperature with its effect on the entire muscular system—this point has also been

emphasised by C. B. Radcliffe, Wunderlich, and Bennett Dowler of New Orleans; (2) the general wasting of the muscles in fever; (3) the marked sense of prostration (*debilitas febrilis*); (4) the excess of urea excreted in the urine, there being a definite relation between temperature and amount of urea (in "typhoid fever" about 1065 grains of urea are excreted in 24 hours, the normal being 400 grains); and (5) the pathological condition of the muscular structures before and after death. He also considers that this condition is due to an increased metamorphosis of blood and tissues with subsequent rapid wasting of the latter ("histolysis"), and that it is a common and necessary result of fever. He insists on the importance of "muscular prostration"—the patient being often found lying on his back in the middle of the bed, having gradually slipped down—as a characteristic clinical sign, and notes that "muscular weariness" is one of the earliest symptoms. The remark of Da Costa that "no blunder is more common than to misconstrue into typhoid fever a typhoid condition of the system" is not without its weight and value in reference to diagnosis.—*The Lancet, August* 17, 1895, *p.* 398.

NERVOUS SYSTEM.

59.—ON SOME OBSCURE INJURIES OF THE BRAIN AND THEIR TREATMENT.

By H. T. Butlin, D.C.L., F.R.C.S., Surgeon to St. Bartholomew's Hospital.

[Owing to space, some omissions have had to be made from Mr. Butlin's very interesting and important paper.]

There is a class of cases involving injury to the brain in which the external indications of injury are ill-defined, and the subsequent effects are apparently out of proportion to the visible damage. Let us take the case of the man before you. He is 55 years of age, and on September 4 he was engaged in hanging up a picture when he slipped and fell, striking his head against the corner of the mantelpiece. He presented himself with some bruising of the back part of the head in the middle line, but not complaining of any particular symptoms beyond having been badly shaken. He does not seem to have lost consciousness, though, naturally enough, he felt rather dizzy after the blow. In spite of the absence of symptoms the surgeon in charge, with

commendable prudence, thought it best to keep him under observation for a time in the casualty ward specially reserved for such cases.

I saw him the next day, but beyond some drowsiness and irritability there was nothing to indicate that there was much the matter. He was, however, kept in the hospital to see whether anything else would occur. He continued in much the same condition until the 8th, when without any warning he was heard to cry out, and the sister found that he was "in a fit." This was at about three o'clock in the afternoon, and between that time and my arrival on the scene he had 17 recurrences of the convulsive seizure with a local onset. He was conscious between the fits, but it seemed to us there remained some paresis of the left side of the face and left upper extremity. There was no outward sign anywhere to lead me to suppose that the right side of the head was damaged, and I did not think it was likely to be an inflammatory attack, his temperature not having risen, and there having been no rigor. In fact, there were none of the general signs of fever, and it was unlikely that the symptoms would have come on as suddenly as they had done if they had been due to meningitis or abscess of or upon the brain. I thought there was probably some effusion of blood, due probably to damage to a vessel, the blood having been poured out on the right side of the brain, perhaps in consequence of some brusque movement, for he had shown himself singularly restless and irritable. We shall see how far this diagnosis was correct. There was no previous history of fits.

My desire was to trephine this patient at the junction of the facial and arm centres, our guide to which is the fissure of Rolando. I raised up a flap of scalp but I found no indication of a fracture, no trace whatever of an injury. Having trephined I found the dura mata healthy and free from inflammation, and there was no effusion between the dura mater and the bone. I therefore went a step further and raised the dura mater, and underneath it I discovered a little tiny clot of blood, not bigger than my finger nail. It was not quite fresh, having evidently formed some days before. It seemed difficult to imagine that so small a clot could have determined so much disturbance, and in order to facilitate my search for injury I removed another piece of bone lower down, but I did not alight upon any more clot.

On looking closely I perceived that the arachnoid corresponding to the size of the small clot was somewhat raised from the pia mater by a collection of clear fluid. This serum was collected just over the fissure of Rolando, and it pressed upon the surface of the brain so as to produce a depression of

the brain substance into which I could put my finger. I had very little doubt that the whole trouble was due to the effusion of a small quantity of blood into the interior of the skull, and that the irritation of the little clot had set up inflammation, or at any rate, irritation, as a consequence of which the fluid had been poured out. I evacuated the fluid, introduced a piece of gutta percha tissue to serve as a drain, and then replaced the pieces of bone which had been left in warm boracic solution. They lay upon the surface of the dura mater quite loosely, they being of course much smaller than the holes which their removal had left. The wound was closed except at the lower end, and the patient was sent back to the ward, and we did our best to keep the wound aseptic. Even after the operation he remained violent, but from that moment he had no more fits. His mental condition nevertheless remained very unsatisfactory. He was excited and restless, and complained in his lucid moments of severe headache. When I saw him again some days later I found œdema all over the scalp, which made me feel very uncomfortable, because I was not unnaturally afraid that it was due to cellular inflammation from imperect asepsis. As, however, his temperature was nearly normal, and as his general condition appeared good, I began to hope that such was not the case, and, as a matter of fact, it was probably due to effusion of cerebro-spinal fluid beneath the scalp. For many days more the patient remained in a very unsatisfactory condition, was noisy at night, so much so that we had to put him in a special ward with a male attendant for several days. On September 26, that is to say, two or three weeks after the operation, on examining the wound we saw a little pus along the track of the gutta percha drain. As he was still in an unsatisfactory mental condition, and as he had only partially recovered consciousness, and was violent at night, I requested my colleague, Mr. Lockwood, to open up the wound (having a bad finger I could not do so myself). We thought some pus might have collected there in the neighbourhood of the pieces of bone. It was, of course, quite possible that they, or one of them, had necrosed, causing a collection of pus pressing on the brain. He found, however, that both pieces of bone were firmly set, but around one of them there were some fungous granulations. He removed this piece, but not without some difficulty, so firmly was it embedded, and he would, I think, have removed the other, but fortunately it occurred to me to leave it.

If I have any regret about this case, it is at having consented to the removal of the lower piece, for I am sure it would have been sufficient to have scraped the granulations, applying carbolic acid. We then closed the wound again, leaving in

a drain. Although the patient's mental condition underwent no very obvious change, the wound healed completely in the course of a few days. It was not until the 22nd October that the services of a male attendant could be dispensed with, and for a long time he was kept in a separate ward. At about that date he began to make rapid progress, and he has since recovered, as far as one can tell, absolutely, from the effects of the injury.

There are one or two interesting points about this case to which I should like to call your attention. The pathology of the case, to begin with, is of great interest. The injury was quite at the back of the head, yet the trouble he complained of was far away on the right side. You will notice also what a great degree of disturbance was produced in the interior of the skull by a very small clot. I hope by-and-bye we shall obtain further information as to the frequency of the formation of these small clots, and as to the frequency of the pouring out of fluid underneath. You all know how epilepsy sometimes follows comparatively trivial injuries to the head, and it may well be that the causative lesion, in such cases, is similar to what I have just described to you.

The second very interesting feature of the case is the putting back of the pieces of bone. Here is a skull showing a trephine hole almost filled up by bony formation, but there remains a small gap. What I did in this case has been done a good many times before, but the oftener it is done the less often shall we be obliged to raise portions of the scalp as a whole. The reason for doing that is that there is much less liability of necrosis of bone, but the chief objection is that the bone must be raised up, not by a trephine, which is a very useful instrument, but by the chisel and mallet or by a saw. Now, I have never been able to bring myself to knock a piece of bone out of an injured skull with a chisel and mallet, not, at any rate, in such a case as this.

The operation has turned out well, but it may be well to ask, what would probably have happened if I had not intervened? Would the patient have got well without an operation? I am inclined to think that, in the first place, the blood-clot might have shrivelled up, and, with the effusion, might have been reabsorbed. Had this taken place the fits would doubtless have ceased, and the patient would have got well. Certainly this might have happened, but, on the other hand, inflammation might have supervened, meningitis possibly running on to the formation of pus. On looking up the records of trephining for traumatic epilepsy I came across one or two curious cases. In the *Lancet* for 1891 there is reported a case of head injury very similar to this one.

You may remember a little child, between two and three years of age, who was in my wards in July, 1892. The child had a sinus just above the orbit which led down to dead bone. The only history we could obtain about the child was that she was said to have had a fall in the previous February, but that no trouble had followed the injury until June, when she was seized with fits, the right side being more convulsed than the left.

In July the child's condition had become worse, the sinus had discharged, and this led the mother to bring the child to the hospital. I opened up this sinus and found quite a large piece of dead bone, which I removed, leaving the dura mater bare. It appeared, however, quite healthy, and the child was apparently none the worse for the operation. On September 9 she left the hospital, not quite well, the sinus still discharging a little ; in fact I allowed her to be taken away in the intention to have her back later on for a further removal of bone. On September 14, the child was brought back again. This time there was marked drowsiness, and she complained of pain in the left ear. She had a high temperature, not an oscillating temperature, but one constantly high. Though drowsy there was no paralysis nor fits, but the pain in the ear became worse. On the 28th, my house-surgeon punctured the membrana tympani, giving exit to much pus. No improvement followed, the temperature still remaining high, and although there was no longer any pain in the left ear the general condition of the little patient was very unsatisfactory. On October 2, I raised a skin flap behind the ear and examined the bone, removing a small portion of it, but there was no bulging of the dura mater nor any indications of an accumulation of pus. Next day I got my colleague, Mr. Langton, to see the case with me, and he agreed that it would be wise to search for an abscess in the brain.

We thought that the abscess, if present, was connected rather with the ear than with the frontal sinus, so I trephined over the tempero-sphenoidal lobe, taking out a piece of bone in that situation. I passed a large trocar and cannula in several directions in the brain, using one of large calibre in order that no blockage of the lumen might keep back the pus. Nothing came of it, however, and the child was sent back to bed. The symptoms increased in intensity, and the child died on October 12. You may imagine my annoyance when, at the post-mortem examination, we found an abscess of the brain containing three ounces of pus and pus in the lateral ventricles. I must have passed within an eighth of an inch of the abscess during my exploration, and the most vexing part of it was, that the trouble in the ear had nothing to do with its

formation, the abscess being connected with the damage to the frontal bone. I am not ashamed of having been thus misled. There were no symptoms pointing to an affection of one part of the brain more than another.

As if to remind me that cases of a very different kind may occur, on November 5th of the same year a man was brought to the hospital in an absolutely unconscious condition. He was 22 years of age, and he had been found in a house of low repute in the condition in which he was brought to us. He had, as a matter of fact, received very formidable injuries, wounds about the left orbit, and a comminuted fracture of the lower jaw. He lay like a log, and I naturally thought he had some severe lesion of the brain. After awhile he recovered consciousness to some extent and could answer questions, though he could with difficulty be persuaded to do so. The temperature remained normal, and for a time I thought he was going to recover. In the course of a few days, however, he gradually became worse, the little glimpse of consciousness faded, he became duller and duller, his temperature began to rise, and eventually attained a considerable height. He became noisy at night, and on November 28 it was noticed that the left pupil was a little smaller than the right, but there was no paralysis (the only sign of paresis was on admission, when movement of the right upper extremity seemed less strong than on the left). This seemed to correspond with the injury on the right side of the head. On November 29 I took counsel with several of my colleagues, and they thought I should be doing quite right to trephine, as he was obviously getting worse. I trephined over the arm and leg centres, and removed three pieces of bone, but I discovered nothing, neither meningitis nor bulging, nor, in fact, anything indicating a grave lesion of the brain. He was not affected one way or the other by the operation, and the next day he died. We made a most careful examination of the body post-mortem, but we were unable to discover a single organic lesion of the brain or anywhere within the skull. The interpretation I put on the case was, that the man was suffering from very bad concussion not due to other lesion than bruising of the brain, with possibly some slight ecchymosis. This had gradually cleared up, and the man's later condition was due, not to any trouble in the brain, but to disease of the lungs, in fact to a pneumonia secondary to the compound comminuted fracture of the jaw. He really died of that, and not from any brain mischief. He died 25 days after admission, and all the conditions upon which the very profound concussion depended had entirely disappeared, if indeed gross lesions ever existed.—*The Medical Press and Circular, October* 9, 1895, *p.* 357.

60.—MENINGOCŒLE TREATED BY PLASTIC OPERATION.

By A. W. Mayo Robson, F.R.C.S., Senior Surgeon, Leeds General Infirmary ; Professor of Surgery in the Yorkshire College of the Victoria University.

If guided by certain text-books, the surgical student might be led to think that the excision of a meningocœle, either connected with the spine or the skull, is an operation so heroic as to be unjustifiable. This is evidently a survival of the preantiseptic era and with certain reservations may be disregarded.

In a paper read before the International Congress at Rome and illustrated by a series of 20 cases, I stated my views very fully with regard to spina bifida, many of the cases related being examples of meningocœle.

The only really serious difficulty in operating on a cranial meningocœle is that occasionally a portion of the nerve-centres may be contained in the sac, but this may usually be diagnosed by careful palpation with or without a preliminary aspiration of the sac. At times this complication may be difficult to determine, as the cerebellar protrusion may be so small and so soft as to be with difficulty felt. This uncertainty need not, however, prevent an exploratory operation, for if after reflecting a flap of the integuments near the base of the tumour a small incision just large enough to admit the finger be made into the meningeal sac, this can be effectually closed if it be deemed unwise to proceed further with the operation. In a case of this kind I found the cerebellum lying in the sac and attached by a long pedicle. Not feeling justified in performing a physiological experiment by removing the cerebellum, I sutured the small incision by separate meningeal and skin sutures, and the child recovered, to be again brought by the mother three months later with a request that I would remove the tumour at all risks ; which, however, after a consultation with my colleagues, I declined to do. In simple meningocœle there is usually a distinct neck to the meningeal sac, which can be ligatured after integuments have been dissected off ; the skin-flaps can then be sutured separately, so that the ligatured neck of the sack lies out of the line of the superficial sutures.

In the cases in which I have operated primary union has been the rule, and recovery from operation has not only been satisfactory, but the after-development of the children has not been impaired.

The following case is a good example :—

[The illustration shewing a very large meningocœle has been omitted on account of space.]

N. H., aged six months, in good general health and otherwise well developed, was brought to the General Infirmary at Leeds with an occipital tumour ; the history being that at birth the swelling was only the size of an egg, and that it had increased rapidly, especially during the previous two or three weeks. At first the swelling was pale on the surface, but of late it had become red and inflamed. On admission the tumour was translucent at the fundus, and the coverings were inflamed over an area of several inches, though the redness stopped short of the base of the swelling, which was very tense, the tension being increased when the child cried. From the rapid increase in size, the attenuation of the coverings, and the inflammation of the fundus, it was quite manifest that unless curative measures could be adopted the end must come within a short time. Permission for operation was therefore asked and readily granted. The tumour was shaved and asepticised by 1 in 40 carbolic dressing, applied for a few hours before operating.

September 27.—A mixture of chloroform and ether was administered, and a curved incision made through the skin on the left side of the base of the tumour so as to form a flap ; a small exploratory incision was then made through the meningeal wall of the sac, when fifteen ounces of clear cerebro-spinal fluid escaped ; the finger was inserted, and it was found that the opening into the skull was quite free and about $\frac{1}{3}$ inch in diameter ; the skin incision was therefore continued round the base and the meningeal pedicle freed, the latter was ligatured with a fine silk suture, and the tumour was removed by an incision just beyond the ligature, which was then cut short. The integumental flap was then brought over the pedicle and fixed *in situ* by silkworm-gut stitches.

The after-progress was perfectly satisfactory, as shown by the temperature-chart. The child took the breast soon after the operation, and apparently experienced no discomfort. The sutures were removed on the sixth day, when the wound was found to be healed, and the patient was discharged cured on the ninth day. When heard of some time afterward it was well and thriving.

This operation, I feel sure from ample experience, is one which can be recommended in a class of cases otherwise hopeless ; but unless the operator is prepared to take every pains, both in the details of the operation and in the observance of antiseptic precautions, the older rule of non-interference had better be observed.—*The American Journal of the Medical Sciences, September*, 1895, *p.* 280.

ALIMENTARY CANAL.

61.—NOTES ON TWO CASES OF ENUCLEATION OF THYROID CYST.

By W. H. Brown, F.R.C.S. Ireland, Surgeon to the General Infirmary at Leeds.

The treatment of cystic goitre has hitherto been of a disappointing character, and the methods mentioned in the various text-books have always, so far as I have seen, been attended with much febrile disturbance and great personal discomfort, not to mention the uncertainty of success and the very tedious progress towards convalescence. In the two cases which follow I adopted the plan first carried out, I think, by Dr. Vachell, of Cardiff, in 1885. The cases are so alike in many points that I do not propose to make anything like a detailed separate report. I can supply any particulars that may be asked for as being important. Both tumours occurred in young unmarried women, aged respectively 18 and 25 years. The growths had been noticed between three or four years. No inconvenience had arisen until within a few months of my seeing them. There was no evidence of any general nervous disturbance or blood change. The reason they sought advice was the same in both cases—*i.e.*, an occasional difficulty in swallowing and attacks of dyspnœa, the latter becoming gradually more severe and increasing in frequency. Upon examination, the tumours were firm and elastic, painless, and occupying the position of the left lobe of the thyroid gland. The tumours were almost the size of a large orange, fluctuation could not be made out, and the circumference of the neck was fifteen inches over the most prominent part of the swelling. Under ether I made an incision three inches and a half long over the most prominent part of the swelling down on to the capsule of the cyst. All bleeding caused by the incision was next stopped by pressure forceps, then with the finger and a blunt director the cyst was stripped from its attachments, steady sponge pressure following up this process; after that, the cyst having been freed on both sides, I opened it and allowed the fluid contents (about four ounces) to escape. This permitted of more room in the wound cavity, and enabled me to complete the detachment of the posterior surface of the cyst wall with greater freedom of manipulation. After the removal of the tumour the cavity was packed with sponges for a few minutes; this effectually did away with any tendency to oozing. To give some idea of the depth of the wound, I may mention that it required six

fair-sized sponges to fill it. After the washing out with carbolic water the wound was closed in the ordinary manner, and a large rubber drainage-tube was inserted at the lower angle. This was removed after twenty-four hours. In both cases union by first intention was obtained, and the after-treatment does not need mention, save perhaps that in the first week the patients were kept constantly upon the back, their heads being firmly fixed between two large sandbags. In neither case was there any important rise of temperature. Both patients are now well.

Until quite recently I had looked upon thyroid enlargement of this character as being somewhat beyond satisfactory operative treatment. The list of remedies given in the text-books does not mention one that, in my opinion, can be compared with the plan I have just described, and which, by the way, is not spoken of in any surgical work to which I have had access, save in Heath's Dictionary, where Dr. Felix Semon suggests that enucleation might possibly be undertaken, but does not advocate it, and by Mr. Jacobson, who advocates antiseptic excision, but quotes a case which is not very encouraging. In his recent work on tumours Mr. Bland Sutton states that all cystic growths of the thyroid gland have their origin in adenomata, and that they can readily be shelled out from their bed, whether cystic or solid: and, lately, I have had the opportunity of verifying the statement by enucleating an adenoma of the thyroid gland in a girl of 15, the operation being perfectly straightforward. This case is also doing well. So far as I have seen, the operation itself is not difficult; once the tumour has been fairly exposed hemorrhage ceases to be troublesome. In stripping the cyst wall I used the finger and blunt director, and thus avoided lacerating the gland tissue; unless this be done hemorrhage of an embarrassing nature must occur. The originator of this operation worked through a small incision, opening the cyst at once and dragging it out of the wound afterwards. I prefer a freer opening so as to be in a position to command a good view of the wound cavity. In the second case the wound was fully five inches in depth, going down behind the sternum; and bleeding from such a distance would be most difficult to combat through a small incision. I need hardly point out that in this operation every detail of cleanliness must be most carefully observed, as carefully indeed as within the peritoneum; for nothing could more readily end in disaster than septic infection of the thyroid gland, and given that infection, septicæmia of an almost certainly fatal character would follow. Now that the distinction between the general enlargement of the thyroid gland and a growth in that gland, whether cystic or solid, has been made clear, and the fact that

the latter can be dealt with by a safe operation having been demonstrated again and again, the operation of enucleation will probably soon obtain recognition in the text-books and become more general. It may often be impossible to say whether a given swelling is solid or cystic—in such cases exploratory puncture will help towards a diagnosis ; but even if that should prove negative as to the presence of fluid, if the tumour appear to be in the thyroid gland and not of it, then operation can be entertained, as evidence Mr. Sutton's statement and my later case. Let it not be supposed that this operation applies to all cases of thyroid enlargement. Selection must be made or disaster will follow, and odium will be cast upon what is to my mind a very valuable addition to the surgery of the thyroid gland. Since writing the above I have had brought to my notice Mr. Charters Symond's paper, read before the Clinical Society, in which he advocates operative treatment very much on the same lines, and quotes many successful cases.—*The Lancet, September* 21, 1895, *p.* 722.

62.—TWO CASES OF PERFORATED GASTRIC ULCER TREATED BY OPERATION: ONE RECOVERY.

By William J. Maurice, M.A., M.B., B.Ch. ; Surgeon to the Royal Berkshire Hospital, Reading.

Case 1.—A young woman, aged 19 years, was seized with sudden acute pain in the left hypochondrium and between the scapulæ at 3 p.m. on February 15, 1895. She was seen by Mr. A. C. Major, who diagnosed perforation of a gastric ulcer and sent her to the hospital, where she was received at 10.45 p.m. She was a rather anæmic girl, with a history of pain after food for some time past. She lay on her back with an anxious expression ; her breathing was rather rapid and shallow ; the pulse was 138, inclined to intermit, but of fair volume ; and the temperature was 101·6° F. She had vomited, but was not collapsed. The abdominal wall was rigid, and liver dulness was absent. She was seen at midnight by Mr. W. J. Maurice, when her condition was not much changed, though she was stated to be looking distinctly worse. Under chloroform, nine hours after the first onset of symptoms, a three and a half inch incision was made in the middle line above the umbilicus down to the peritoneum, which bulged into the wound ; gas escaped at once on the peritoneum being opened. The stomach was drawn out of the abdomen, and a small perforation was readily found on the anterior surface, near the

cardiac end, and was secured by two rows of Lembert's sutures. The peritoneum was flushed with water at 110°, a good deal of lymph was removed with sponges, and the wound was closed. The stomach was then partially washed out, and one-sixth of a grain of morphia was injected hypodermically. The patient had a good night. She was fed by nutrient enemata at first, mouth feeding being begun on February 18, when also the bowels were opened by an enema of olive oil. From this time the progress was satisfactory, although the temperature did not become quite normal for nearly three weeks; there was also some suppuration of a rather superficial character. On March 1 she was suffering from thrombosis of the left saphena vein, which lasted for about ten days. She was put on a fish diet on March 15, and soon got strong and well. She was, however, detained in hospital till April 30, waiting for admission to a convalescent home.

Case 2.—A woman, aged 30 years, was seen in private by Mr. W. J. Maurice at 9 p.m. on March 2, 1895. She had been seized shortly before with sudden acute pain in the epigastrium, and more especially between the scapulæ, and had vomited. There was little or no tenderness; the abdominal muscles moved well; the temperature was 98·4° F.; the pulse was weak and the liver dulness was normal. She preferred to lie on her left side with the legs fully extended. She was known to have suffered severely from gastric ulcer ten years before, and had been under treatment for dyspepsia recently from time to time. Perforation of a gastric ulcer was at once suspected. She was given one grain of opium pill and was seen again at 10.30 p.m. By this time, though she was still in pain, her pulse was slower and stronger, she had not vomited, and was quite warm. In the belief that she was really better, and that, after all, perforation had not actually occurred, a small injection of morphia was given, and she was left for the night. Next morning it was found she had changed for the worse in every way. She had not slept, her pulse was very weak and rapid, and her abdomen was beginning to be distended. Unfortunately, from various circumstances, it was impossible to remove her to the hospital till the afternoon. At 4.30 p.m. (nineteen and a half hours after perforation) she was placed under chloroform; the abdominal muscles then moved well; liver dulness was present, but was somewhat diminished. The physical signs, in fact, were but slight. An incision was made in the middle line above the umbilicus; the peritoneum did not bulge, and no gas at first escaped on opening it. A coil of reddened, lymph-covered intestine was seen to be adherent to the stomach. An attempt was made to draw the stomach out of the wound, but it was found to be bound down by old

adhesions; a large, thick-edged aperture was, however, discovered, from which food and gas escaped. It was hard to make out its exact anatomical situation, but it seemed to be on the lesser curvature midway between the cardiac and pyloric orifices; above and behind it there was what was taken to be the pancreas, with the gastro-hepatic omentum intervening; the pylorus was displaced downwards. The perforation was extremely hard to reach owing to the matting together of intestines round it; but it was eventually closed fairly satisfactorily with two rows of fine silk sutures, the second row being placed at right angles to the first. The peritoneum was flushed and sponged, and the wound was closed. The operation lasted one hour and a half. The patient had a very restless night, with much hiccough and coffee-ground vomiting. The whole of the next day she was as bad as she could be; the pulse was very feeble and running, and there was a good deal of abdominal distension. On the morning of March 5 she was better after a fair night; the bowels acted very freely and continued to do so constantly till the following day, when she had distinctly improved; there was less distension, the pulse and breathing were quieter, and she no longer passed motions under her. Feeding by the mouth was begun on March 7, and all went well, with daily improvement, until 3 a.m. on March 11, when she had a severe attack of vomiting. The pulse again became feeble and rapid, and in the evening she was drowsy and restless, with dusky appearance, though there was no further vomiting. She was given three grains of calomel and one grain of opium. The next two days were marked by increasing weakness with rapidity of pulse, but there was no pain or vomiting, and she rested and took nourishment fairly well. At 9 a.m. on the 14th, while her bed was being put straight, she was seized with sudden pallor and laboured breathing, and died in half an hour, unexpectedly.

Necropsy.—The body was fairly nourished. The operation wound was four inches long in the middle line above the umbilicus; from it a small amount of blood-stained purulent fluid escaped. The abdominal wall around the wound was infiltrated with pus; just beneath the wound there was a collection of thick pus shut off from the general peritoneal cavity by adhesions between the small intestine and the abdominal parietes. The small intestines were darkly coloured, empty, and bound down everywhere by recent adhesions. There were occasional patches of lymph, but there was no pus in the general peritoneal cavity. The stomach was greatly dilated, hour-glass in shape, and full of dark, foul-smelling fluid. The lumen at the centre of constriction would only admit the forefinger with difficulty, but at the upper margin of

this, just in front of the attachment of the lesser omentum, there was a large ulcer the size of a shilling, with thick, rounded edges. The stomach was adherent to the pancreas behind. So far as could be ascertained, the sutures had held securely. Some scar tissue was found stretching from the edge of the ulcer towards the pylorus. Near the cardiac end of the stomach there were numerous submucous hemorrhages. The kidneys, spleen, liver, heart, and lungs were examined and found to be normal.

Remarks.—Perforation of a gastric ulcer is, here at any rate, a far more common affection than is generally supposed. I myself know of at least ten cases which have occurred in Reading within about twelve months. Of these ten cases seven have been operated upon, with three recoveries. Of my own three cases of operation one lived over a week, a second lived nearly a fortnight, and a third recovered; both the fatal cases at one time promised to do well. A comparison of my cases leads me to attach most importance to the following points:—(1) Early operation, which means prompt and accurate diagnosis. A single grain of opium may almost completely mask the symptoms. (2) The age of the patient and the degree of collapse. (3) The previous history; long-standing ulcer means matting of parts and also impaired nutrition. (4) The situation of the ulcer: most perforating ulcers are on the anterior wall, but near the lesser curvature they may be hard to get at. (5) A large perforation is more difficult to close than a small one, but more depends upon the extent of the ulcer and the condition of the surrounding tissues. Excision seems to be unnecessary, and would be quite impossible in a really difficult case. (6) Extensive escape of stomach contents, which means much shock at the time, and probably extensive peritonitis afterwards. It is a singular fact that in my successful case, as in that of Mr. Walters and some others, recovery was delayed by thrombosis of the left saphena vein.—*The Lancet, October* 19, 1895, *p.* 980.

63.—THE OPERATIVE TREATMENT OF HERNIA.

By W. S. Halsted, M.D., Professor of Surgery in the Johns Hopkins University, Baltimore.

[The following is taken from Dr. Halsted's paper:]

The problem is to close durably a rent in the abdominal wall and to provide for the safe transmission of the spermatic cord. The cord is the first cause of the hernia and the ultimate obstacle to its cure. If we coul dignore the cord, the solution

of the problem would be comparatively easy. The larger the cord the greater the liability to a recurrence of the hernia. The size of the cord depends chiefly upon the veins. Then why not reduce the size of the cord by excising such veins as may be superfluous? By this procedure the cord may usually be reduced to less than one-third, and sometimes to one-fifth or one-sixth of its original size. Two quite distinct sets of veins accompany the vas deferens. When the tunica vaginalis propria funiculi spermatici has been divided and the elements of the cord are gently spread out by the fingers the larger superfluous bundle of veins lies at some distance from the vas deferens. A few very delicate veins hug the vas deferens closely. The veins which we designate as "superfluous" are those which I regularly excise in operations for varicocele. We have not thus far seen atrophy (May 15, 1895. In three of our cases atrophy of the testicle has been caused by the operation. The atrophy is probably due to the excision of the veins, for it has occurred thus far only in the cases in which the veins were excised) of the testicle follow excision of these veins. Our cases have been observed with especial reference to this point. I think that there can be little doubt as to the advisability of reducing the size of the cord by excising these veins when they form a large bundle.

Let us consider next the closing of the hole in the abdominal wall. What tissues shall we employ and how shall we bring these tissues together? It has been demonstrated too often that the stitching of the pillars of the ring does not suffice. We must do more than bring free edges of the aponeurosis of the external oblique muscle together. Fortunately we have muscles so near at hand and so placed as to suggest at once a simple, and what has proved to be an entirely effective, plastic operation. After cutting through the anterior wall of the canal down to the sac, we continue the incision in the same line, outward and a little upward, through the internal oblique and transversalis muscles for an inch or less. We divide the muscle-bundles about at right-angles to their long axes. Thus two flaps of muscle are obtained, which we draw down into the canal and include in the deep stitches in the way to be described. The uppermost bundles of the cremaster muscle are often so heavy that we can use them for the same purpose. We close the rent which Nature has made and which the knife has enlarged with mattress-sutures, precisely as we close all abdominal wounds. The mattress-suture is to be preferred to other sutures because it constricts the tissues less, holds greater surfaces in contact, and insures, ultimately, more accurate apposition of the several planes of tissue. These stitches bring surfaces together at the outset, just as in sutures of the intestines the walls of the

intestine, irrespective of the stitch, are always brought together. The walls of the intestine are so inverted that the muscular surfaces (so-called peritoneal surfaces) are extensively in contact, the cut edges never. And yet after a few weeks no trace of the inversion remains. Sometimes an almost imperceptible dark line is left to indicate the position of the cicatrix. With the aid of the microscope we see that the finest layer has met its fellow and may be traced uninterruptedly through the cicatrix, and were it not for the rudimentary character of a few of the villi we might search in vain for evidence of the solution in continuity.

There are usually six of these deep stitches. They are taken very close together, not more than 1 cm. apart. The two arms of each stitch are 7 or 8 mm. apart. The vas deferens, with its arteries and remaining veins, is brought forward between the two outermost stitches. These two stitches are closer together than the others and embrace the cord snugly. The outer arm of the outermost stitch is sometimes passed through uncut muscle.

When the deep wound is closed muscle should be seen throughout the greater part of it, projecting between the cut edges of the aponeurosis of the external oblique muscle. These edges are then made to embrace the cord more snugly at the point where it passes between them by two very fine stitches. The skin incision is closed with an uninterrupted suture. As we approach, in stitching, the lower inner angle of the deep wound the muscle becomes thinner and finally gives out. The aponeurosis of the external oblique, with perhaps a few fibres of the cremaster, is all that is left for the innermost stitch. If the aponeurosis at this point shows, as it sometimes does, a tendency to split when it is vigorously pulled upon by a stitch, we gather or pucker it up by taking running mattress sutures in place of the ordinary mattress sutures. In running the stitches I try to avoid perforating the aponeurosis. The puckering is, of course, only a temporary affair, but the running stitches enable us to close the lower angle of the deep wound with less damage to the aponeurosis.

In short, we close our hernia wounds precisely as we close all wounds of the abdomen, except that in hernia alone we stitch the peritoneum separately. In wounds of the linea alba we split the sheaths of the recti muscle, whether we are operating for the cure of hernia or not, that we may oppose broad surfaces of muscle throughout the whole length of the incision. For the same reason, and also that we may transplant the cord in the male and the round ligament in the female, we divide the internal oblique and transversalis muscles when operating for the cure of inguinal hernia.

We have operated one hundred and sixty-five times for the cure of various forms of hernia in both sexes without a death from the operation. One hundred and six males with inguinal hernia have been operated upon by my method. The wounds, with few exceptions, have healed absolutely *per primam.* Thus far we have been unable to find a single recurrence in cases whose wounds healed *per primam.* The case which furnishes the nearest approach to a recurrence was operated upon about three years ago and is now under daily observation. The man has the physiognomy of a Hindoo, but is classed as a negro. He is about 35 years old, not much more than half-witted, and was on admission, and still is, much emaciated and exceedingly feeble. Within the first twenty-four hours he got out of bed. Possibly he repeated this act of disobedience daily. The wound healed absolutely *per primam.* There is at present, but only on coughing, a bulging of the very thin, flabby abdominal wall from the inner almost to the outer end of the scar. The local condition is not bad enough to demand a second operation.

For about one year I have sewed all of my hernia wounds with silver wire and have covered them with silver foil. Without exception the wounds have healed absolutely *per primam.* Not a single stitch-abscess has been observed either during or subsequent to the healing of the wound. Such absolutely perfect healing of the hernia wounds we have not had heretofore, and I am convinced that the use of silver as a suture material has contributed somewhat to this result. We have tested the effect of silver on the growth of the more common pyogenic organisms. I have here two Pétri plates which Dr. Bolton has kindly prepared for me. They have both been inoculated with staphylococcus pyogenes aureus. In the centre of each plate is a piece of silver foil, such as we use on our wounds. Just outside, and completely surrounding the foil, is a perfectly clear zone several millemetres wide. Except for the clear zone and a slightly intensified zone just outside of this, the agar is quite uniformly cloudy. The cloudiness is due to the growth of the micro-organisms with which the agar has been inoculated. Dr. Bolton has studied the effects of various metals on the growth of bacteria, and has recently read a most interesting paper on this subject before the Association of American Physicians. With cadium, zinc, and copper, Dr. Bolton observed that the inhibitory action was greater than with silver. Prior to my knowledge of Dr. Bolton's experiments I tried to use copper and brass foil for protective, and copper and brass wire for sutures ; but these metals corroded the tissues so much that I soon stopped using them. We do not hesitate to employ buried sutures of silver wire in sewing tissues on the confines of an infected region. In cases of acute suppurative appen-

dicitis, for example, we close the wound in the abdominal wall with deep, interrupted, buried sutures. These wounds are drained by a few strips of gauze. Two of the sutures are taken very close to this gauze, and sometimes must pass through tissues which are infected. Not even in such cases have we ever had a stitch abscess. Once a silver stitch and once a silver bone-plate, having been exposed to view and to the air by necrosis of the overlying tissues, were allowed to remain and to become imbedded in the granulations of the wound, which healed by suppuration. Neither the stitch nor the plate at any time caused the slightest disturbance in the tissues or inconvenience to the patient.

We have already observed much in the use of silver wire that is worth recording and enough to satisfy us that it will play a new and more important *rôle* in the surgery of the near future.—*The American Journal of the Medical Sciences, July*, 1895, *p.* 13.

64.—ON INTERNAL STRANGULATION.

By William Thomson, F.R.C.S.I.,
Surgeon to the Richmond Hospital, and Vice-President of the Royal College of Surgeons in Ireland.

[The following is taken from Mr. Thomson's paper read before the Royal Academy of Medicine of Ireland. The remarks on diagnosis and treatment are obviously very important.]

The causes which lead to strangulation of the gut are various. Sometimes it is a rent in a membrane through which a knuckle accidentally passes; sometimes the sudden pressure of a Meckel's diverticulum; and sometimes a like force exerted in the same way by a so-called band whose existence has been unsuspected. The process named after Meckel is a relic of fœtal life, and passes from the lower part of the ileum to the umbilicus; consequently it is of considerable length, and when it produces strangulation a long coil is usually affected in more than one point. On the other hand, the bands which have been created by a previous attack of peritonitis are variable in length. I have seen them stretching across the abdomen, between very distant points; and again, so short that they could be discovered with difficulty. In two of the cases which I treated, the ring which was formed was so small that I could hardly pass my little finger into it. Yet a considerable quantity of intestine had gone through. The part at first must have been very small, and the vermicular action had forced onwards the portion which I found strangulated. That is one of the strange characters of some of these cases; but it is still more curious to note that

patients who have such a thing as a Meckel's diverticulum stretched across a great space, and with the intestines closely applied to it, should for so long a period escape the danger of strangulation, and often carry it throughout life without damage.

My experience of cases of strangulation by bands or diverticulum extends to three.

[Short details are then given of these cases.]

I have not attempted to trouble you with full clinical details, but rather to give such a sketch of these cases as will serve for what I hope will be instructive discussion. I grieve to say that while diagnosis was correct, the results were uniformly fatal, and that they thus go to swell the list of unsuccessful laparotomies for intestinal strangulation.

One point I may call attention to, and that is the fact that in two of the cases there had been a gradual approach, apparently through many years, to the eventual crisis of strangulation. Here the mere relief of the constricting bands would have been insufficient, and only two courses were open—the resection of the stricture, or the creation of an artificial anus. Even had I been aware of the existence of a chronic stricture, I should certainly not have attempted a resection, because the patients would probably have died upon the table. The only course that gave a gleam of hope was the making of an artificial anus.

The reported cases of internal strangulation are some of the saddest in surgery. We have a mortality ranging up to 70 per cent. In one group of records which I looked at I found that of some 35 published by English surgeons, only about 5 patients survived. It is true that that was printed some years ago, but still at a time when opening the abdomen for various surgical affections had well advanced our knowledge of successful treatment. Yet the dismal work still goes on without much improvement in results, and although there are successful cases, they are still in the minority. Why does this fatality dog our steps? Why is it that we regard a strangulation of intestine, in the ordinary cases of hernia, as almost certain to be successfully relieved by the surgeon; and why do we find strangulation of the same intestine within the abdomen so uniformly unsuccessful? These are questions which demand an answer, and that may be found in a short consideration of the two groups of cases.

It is quite clear that deaths do not result from want of cleanliness. The cases do not survive long enough to allow of the development of septicæmia; indeed, they are already dying when we see them. That is in itself a sufficiently bad condition for successful work. The prominent symptom is shock, which is established immediately after the strangulation takes place, and, as a result, the whole of the vital forces are lowered In

addition to this, the extent of intestine which suffers indirectly from strangulation is frequently great. The peritoneum is soon in a state of inflammation, and thus we have present at the time we operate two of the gravest conditions with which we have to combat—shock and peritonitis. On the other hand, in hernia we have most frequently a strangulation of a portion of gut which has been long accustomed to protrude and to undergo varying degrees of pressure—educated, if I may so term it, to tolerate with less resentment the severer constriction which may some day or other be developed. We see this in our practice. We know that a suddenly developed hernia, which becomes strangulated, is a much more serious and dangerous case to face than one in which the patient has been carrying his hernia for many years. And this fact is further of importance in accounting for the few cases of hernia in which we see peritonitis spreading from the nipped portion of the intestine. The peritoneum covering it has been long used to a constant slight irritation by alternate protrusion and reduction, perhaps many times in the day, until at last it is not very easy to rouse it into angry inflammation.

A study of these cases brings into prominence the great importance of early diagnosis and early treatment. Here we are met with the greatest difficulty. Very seldom does the patient come direct to a surgeon. He is seen by a medical man, who is not to be blamed if he does not at once recognise the gravity of the case. Even if he does appreciate this time is lost before additional help can be obtained. But the primary misfortune is that some of the symptoms are common to more favourable cases of obstruction, and it is not always easy to disentangle the threads of the puzzle. Vomiting, pain, complete obstruction, and even collapse, are met with in cases of a different class—cases which are sometimes treated successfully by less serious methods than laparotomy. What we must try to do is to fix attention upon any symptoms which, by their severity or their order of appearance, help to indicate what has happened.

Now, I think the history of the occurrence of pain is of great importance. It is always sudden and severe. The patient not infrequently has been straining at some labour when pain of an acute kind, sometimes at once agonising, occurs in the abdomen in the region of the umbilicus. This pain is steady and continuous, and, in my experience, does not diminish unless towards the close of the case. The pain produced by a twist differs from this. It is not continuous in severity, but comes on in paroxysms. Moreover, there is this further point to be noted, that in the strangulation by bands there is no desire to go to stool; in volvulus there is.

The second symptom which I think of importance is the collapse. This is very rapidly declared. The patient is pale and pinched; the pulse is thready and rapid; the body often covered with clammy sweat. In other instances I have seen collapse also, but it has been much later in its appearance, and has been due to some added complication, such as ulceration or extravasation of fæcal matter into the peritoneal cavity.

Upon these two symptoms I would place most reliance. It is of no practical importance whether we can diagnosticate between a strangulation by bands, or a volvulus, or the protrusion of intestine through a hole in the mesentery or elsewhere. The matter to be determined is whether there is a strangulation or not, for, if there is, the only question to be then settled is the treatment.

Now upon this part of my subject there is very little to be said, but it must be clear and emphatic. There is only one course to be followed, and that is to perform laparotomy. Everything else only increases the great risk which the patient already runs. Between operation with a chance of life, and no operation with certain death, there is no middle way. To narcotise our patient with morphin until he assents to our suggestion that he suffers less pain; to pump quarts of fluid into his rectum and colon in the hope of stirring up the intestines to action, while, in truth, we are only increasing the strangulation—these and the other modes of medicinal treatment are worse than useless; they only hasten the fatal ending.

The subject is not by any means exhausted in the remarks which I have made, but I have already almost exhausted the limits of my space, and I cannot weary you with much more. As to the operation, I only desire to say that speed is of the utmost consequence. This will be admitted when we consider the prostrate condition in which these patients almost invariably are. Here we are met by the further difficulty that the cause of the strangulation cannot usually be determined without a rather prolonged search. The introduction of the hand among the intestines, inflamed as they are, and the existence of peritonitis, adds greatly to the shock already existing. It is of importance, therefore, to get to the seat of obstruction at once.

Shortly, there are two ways in which this may be done—one is by a systematic examination of the cæcum, the ascending, transverse, and descending colon, and then of the small intestine, in this way determining the portion at which distended and collapsed bowel meet. That is, of course, the part to deal with. The other is the suggestion of Mr. Greig Smith, and it has the advantage of causing less disturbance. He says:—"I believe the best means of reaching the seat of constriction will be by

inspection of the bowel presenting at the wound. There is a high probability, wherever the cause lie, that the most dilated coils will rise nearest to the surface ; and the greater amount of bowel being within three inches of the umbilicus, there is a further probability that the most dilated coils will be within sight. Very gently they may be moved—first on one side, then on the other, as well as upwards and downwards. The most dilated portion, which will be also the most congested, or not far off it, is fixed upon and followed in the direction of increasing distension and congestion, wherever that may lead. It will certainly lead to the stricture. The whole manipulation may be carried out with two fingers."

That proceeding should first be adopted, and if it fails we have still left the more serious plan of introducing the hand for more elaborate search. Even this may not succeed, and it may be necessary to allow the intestines to escape, but it should be resorted to only in the last extremity; and, if the patient is seriously collapsed, in my opinion it would be a wiser course to make an artificial anus.

I feel that it is not very exhilarating to relate the story of three fatal cases ; nevertheless, I think it is my duty to do so, in the hope that calm consideration of them may enable us to draw some beneficial lessons. I have learned, at all events, that it is desirable if possible to see, and not only to feel, the obstructing band ; and further, to inspect the bowel itself and judge whether, by a chronic constriction, it has not been so altered as to render it functionally useless. I have tried, further, to concentrate attention upon certain symptoms which I think are of great use in helping us to a diagnosis in a group of cases which are in many senses characterised by great obscurity. Looking back upon these cases, I do not feel that my operations were inefficiently performed, or that the proper steps were not taken. I take what satisfaction there is in that view. Now-a-days, when one hears of long series of ovariotomies without a death, the surgeon who is unfortunate enough to have such cases as I have been considering, is apt to be unduly depressed by the misfortunes he has encountered. Yet the conditions are very different. It is one thing to remove a tumour from the abdomen with a quiet peritoneum, to select your own day, and generally to make your preparations with comfortable deliberation, and then to pile up statistics of triumphs, which, limited practically to one and the simplest class of cases, are put forward as a suggestion that like success may be predicted of everything the operator might do in the same region. But it is quite another thing to take the rough with the smooth—to operate at a moment's notice when there is every combination opposed to a favourable result—the furor of

peritonitis, profound shock, and the hovering of death. Here are sufficient tests of one's courage, and coolness, and prompt judgment, and resource. True, our averages would be better if we did not touch the cases; perhaps our reputation as successful laparotomists would spread advantageously; but when they come to us we must, at any cost to ourselves, do the thing that alone gives a hope of relief.—*Dublin Journal of Medical Science, October*, 1895.

65.—SEVEN CASES OF LAPAROTOMY FOR INTUSSUSCEPTION IN VERY YOUNG CHILDREN.

By C. P. B. Clubbe, L.R.C.P. Lond., M.R.C.S.E.,
Hon. Surgeon Sydney Children's Hospital.

[This is taken from a paper read before the New South Wales Branch of the British Medical Association.]

The seven cases of intussusception in which laparotomy was performed that I wish now to bring before your notice all occurred in young children, not one of them being over six months at the time of operation. The first six cases were in the Children's Hospital, and four of these recovered. The last was at P. A. H., and it died after living four days. I will briefly relate the cases in the order in which they occurred.

Case 1.—Richard C., aged six months; admitted to C. H. August 24, 1893. Has been vomiting, and has passed nothing but blood and slime since last night. The child was somewhat collapsed. There was an elongated tumour on the left side of abdomen, and by rectum a mass could be felt. Under C. H. U. Warm oil was injected, and this had the effect of pushing up the mass, so that it could no longer be felt, and also of reducing the size of the tumour in abdomen. As it was clear reduction had not taken place, laparotomy was performed at once. The tumour was found at the splenic flexure of the colon, and was made up of cæcum and ascending, and part of transverse colon. It was reduced easily enough by squeezing until coccum was reached, and this only unfolded itself after a considerable amount of coaxing. So much pressure had to be put on the intussusceptions that the serous coat of the bowel was torn in two or three places. The cæcum and vermiform appendix were very dark in colour, and felt hard. There was some little difficulty in returning the small intestines. Soon after the operation $\frac{1}{10}$ gr. morphia was given to the child hypodermically. August 26.—The child doing well. Has had two motions, slightly blood-stained; vomited, but very little. I will not weary you with the subsequent history of the case. The recovery was interrupted by a

punomine at right base on the fifth day after the operation, but in spite of this the child ultimately got quite well. I showed this child at one of the meetings of this Branch in October 1893.

Case 2.—Ida C., aged four months; admitted to C. H. September 19, 1894. Said to have been quite well till yesterday, when it suddenly turned white, drew up its legs, and screamed; afterwards attempted to vomit; passed blood and slime by bowels, and has been passing this frequently since; seems to be in less pain to-day. A well-nourished, vigorous child; abdomen not distended; it is doubtful if there is pain on palpation; no tumour to be felt, and nothing by rectum. At 4 p.m. had an anæsthetic; abdomen palpated without anything being felt; child inverted, and large enema given. September 20.—The child in same condition; laparotomy at 4 p.m.; cæcum found in colon, about three inches, reduced without difficulty; cæcum much congested. There was great difficulty in returning the small intestines, and the abdominal wound had to be enlarged.

The child died at 3 a.m. on September 21, eleven hours after operation. T. 105° just before death.

Case 3.—John L., six months; admitted to C. H. October 10, 1894. The child was taken suddenly ill last night; was given some castor oil, and vomited; then began to pass some blood; child has been straining all day. Child well-nourished; does not look very ill; abdomen slightly distended; no tumour to be felt; nothing per rectum. Under an anæsthetic a large enema was given, and considerable pressure was put on; the oil returned as it went, and some blood and mucus followed; no pains. Laparotomy was proceeded with at once. There was some fluid in the abdominal cavity. The intussusception was found on the right side, and was the cæcum into the ascending colon. It was reduced in the usual way by squeezing, without much difficulty. The child vomited a good deal for the first few hours after the operation; passed a motion twelve hours after; the child did well till October 16, six days after operation, when, as there was a good deal of redness of skin caused by dragging of deep sutures on each side of wound, some of these were removed. October 17, twenty-four hours afterwards, when the child was straining or coughing, about three inches of gut came through the wound. This was returned as soon as possible, and the opening plugged with gauze. About an hour afterwards, under an anæsthetic, the wound was opened up, and the peritoneum was brought together again in the usual way with deep (silk-worm gut) sutures. After that the child did well, and was discharged cured November 26.

Case 4.—Irving C., aged four months; admitted to C. H. December 9, 1894. The history was that three days before admission the child had cried with pain. Soon afterwards it

began to pass blood, and had been vomiting constantly. No definite tumour to be felt in abdomen by palpation. A mass could be felt in rectum. Under an anæsthetic, a large enema of oil was given. On opening the abdomen, which was done at once, the cæcum, ascending transverse and descending colon were found in the rectum. It was reduced with difficulty. The cæcum was very congested, and quite hard. After reducing the intussusception there was a very great difficulty in returning the small intestines to the abdominal cavity, because they were so much distended. The gas from some of these distended coils was let out by means of a hollow needle. The puncture wound was caught by fenestrated forceps, and tied with fine catgut. The child did not rally after operation, and died in three hours. Passed a large motion without blood just before death.

Case 5.—David D., aged four months; admitted to C. H. December 20, 1894. The history was that the child had had some diarrhœa on the previous day. The motions were green, and contained caries. At 10 p.m. it had refused the breast, and became restless, and cried as if in pain. Oil was given by mouth, and an injection of soap and water. The motion that resulted was streaked with blood. It has vomited several times, and keeps passing blood. *On Examination.*—The child was fairly well nourished. Does not seem to be distressed. There is some resistance in the left iliac fossa, and a mass can be felt by rectum. Under chloroform, a definite, sausage-shaped tumour on the left side of abdomen was easily made out. A large injection of oil was given, and this evidently partially reduced the intussusception, for the tumour became much smaller, and could now be felt in region of transverse colon. On opening the abdomen the tumour was found in the transverse colon, and was reduced with difficulty. The cæcum was very dark, and felt hard. Ti. opii. in drop-doses was given soon after operation, and in the first eight hours the child took eight drops. This was given because the child was restless, and seemed to be in pain. No vomiting. December 23.—Child had two good motions after calomel gr. i. From this time it slowly convalesced, and was discharged March 5, 1895. This child has been suffering from marasmus more or less ever since, and has been readmitted in order that it may be properly dieted.

Case 6.—Reginald P., aged five months. This child was brought down to my home from Bowral on the afternoon of April 19. The history was that four days ago it had an attack of diarrhœa. Last evening it was suddenly seized with vomiting, and blood and slime appeared in motions. The mother thought it had dysentery. The child was fairly well nourished. It looked ill, but was not collapsed. I could feel a sausage-shaped tumour on right side of abdomen. I sent it at once to the

Children's Hospital. A large enema of oil was given, but it did not reduce the intussusception. On opening the abdomen the tumour was found on the right side, and was reduced easily. The vermiform appendix had been so much pinched that I removed it. This child made a quick recovery, and was discharged May 5, 1895.

Case 7.—Thomas Holmes, aged four months ; admitted to P. A. H. June 5, 1895. History : Said to have had a sudden attacking pain two nights ago. Has been passing blood and mucus by bowels. On examination of abdomen, an elongated tumour to be made out on left side, by rectum most to be felt. Abdomen opened in middle line. Colon from cæcal valve found to be intussuscepted ; reduced easily. All the small intestine was collapsed. In this case no enema had been tried before section, and on this account there was a little trouble in getting behind the mass in the rectum, to begin the squeezing process. This was got over by getting an assistant to pass his finger into the rectum to push the mass up a little. After the operation the child was somewhat collapsed, but picked up during the evening. It had three motions during the night. This child seemed to be doing well for three days, then began to fail, and died on the evening of the fourth day. At post-mortem there was some slight peritonitis and intriction. The cæcum was somewhat discoloured. The greater portion of the small intestine was collapsed.

In *The Lancet* for August 11, 1888, Mr. A. Barker has a paper on intussusception. Mr. Barker collected 73 cases that had been treated by laparotomy ; 60 died, and 13 recovered. In only 34 of these cases could the bowel be released. Twenty-three were children, 5 recovered, and 18 died ; 11 were adults, 7 recovered and 4 died. So that in children the mortality was very much higher than in adults—78·2, compared with 26·3. Up to that date, then, only five children were known to have recovered after this operation.

In going through *The Lancets* and *British Medical Journals* since Mr. Barker's paper, I can only find records of eleven recoveries in children from laparotomy for intussusception. One of these was done in Melbourne by Dr. Snowball, and the other in Tasmania by Dr. Percival. The percentage of recoveries in my cases compares favourably with any that have hitherto been recorded. So far as they go, they are encouraging, and they are a proof, if proof be wanted, that very young children are able to bear the shock of an abdominal section. Should we do laparotomy in these cases ? The writer on intussusception in the "American Text-book of Diseases of Children, 1894," says no. "In cases of acute intussusception," he says, "it has no effect in diminishing the death-rate. The objections to the operation in

acute cases are that there is a reasonable chance of recovery without it, and that at the early age at which intussusception usually occurs renders operative interference peculiarly dangerous."

He goes on to say, "I am well aware that a few brilliant results from laparotomy in infants have been recorded by Mr. Hutchinson, and the late Dr. Sands, of New York, and other operators, but these cases should be regarded as surgical curiosities, showing what infants may sometimes safely endure, rather than as furnishing precedents for future guidance."

Every now and again these cases of intussusception are certainly reduced by rectal injections of either oil, water, or are given with an ordinary enema syringe. Many such cases have been recorded. I had a case only a few weeks ago at the Children's Hospital that was reduced in this way. But we must always remember that there is an element of danger in these rectal injections. It is very difficult to regulate the amount of pressure we put on the gut, and if it is weakened at any point by ulceration it may give way. Mr. Harry Fenwick records such a case in *British Medical Journal* of May 5 of this year. (The post-mortem examination showed that a considerable quantity of gumous fluid was found in the peritoneal cavity. The intussusception was not fully reduced. There were two ulcers in the transverse colon.)

The operation itself is easy, and should, I think, certainly be done in all cases, no matter how young the child is, if we are certain that we have an intussusception that has not been reduced by the rectal injections. If the injections fail, *proceed at once* to the operation. Delay is fatal.

In Case No. 2 the child might have lived if I had operated at once, instead of waiting twenty-four hours. The difficulty in this case was that no tumour could be felt by abdominal palpation, even under chloroform, so that I could not be sure whether the intussusception was reduced or not without waiting to see if the symptoms abated. The next day the child was still vomiting, and passing nothing but blood and slime. So the operation was proceeded with, but the child died. In such cases it seems to me impossible not to err sometimes.

In none of these cases was a drainage-tube used. In some of them the intestines were washed with a warm lotion. Opium in some form was given to all of them for the first 24 hours. For the first 12 hours nothing but water was given. After that, Mellin's food and water for a few days, and brandy if necessary.

The after treatment of these cases is very important, and skilful nursing has, I feel sure, a great deal to do with bringing them to a successful issue.—*Australian Medical Gazette, September* 20, 1895, *p.* 365.

66.—ACUTE PERFORATIVE APPENDICITIS.

By Gilbert Barling, M.B., F.R.C.S.

[The following is taken from the second Ingleby Lecture delivered at Mason College, Birmingham.]

Between this class and that just spoken of the line of demarcation is not to be easily drawn. In many of the acute perforating cases there is a collection of inflammatory fluid more or less well defined by adhesion, but the fluid is thinner than ordinary pus, has more the characters of turbid serum, and the adhesions are slight and offer a feeble barrier to the spread of the inflammation into a general peritonitis. It will readily be appreciated, therefore, that the more acute cases of abscess formation merge into the present group. Acute perforation implies either the presence of a fæcal concretion of foreign body which has ulcerated through the walls of the appendix, or an intense infective inflammation which from stasis and thrombosis has caused gangrene and sloughing of the appendix. The part played by catarrh in initiating both these conditions I have already alluded to at length. However perforation is brought about, what happens after will depend partly upon the position of the appendix and partly upon the rapidity with which perforation occurs. If the appendix is lying free to the inner side of the cæcum, and if the perforation occurs very acutely, there will be rapid infection of the peritoneum and a diffused septic peritonitis will speedily arise. If on the contrary the appendix lies to the outer side of or under the cæcum, or in a peritoneal pouch, or is adherent to surrounding structures from a previous attack, the inflammation will be localised for a time, and the imminence of general septic peritonitis is not so great.

The mortality from these acute perforative cases is very serious, and is much greater than from those conditions previously described. The recognition of this mortality has led to what one may call a "scare," out of which a clamour for operation in all cases has arisen from a section of the medical profession. The argument used is based on the acknowledged difficulty of always recognising an acute perforative case in time to operate ere general peritonitis is set up. It is suggested that the removal of the vermiform appendix in all cases as soon as inflammation of it is recognised would be almost devoid of risk, and the general mortality thus incurred would be less than that following selection of cases. Personally I cannot assent to this view, seeing that a large number of patients, I believe the majority, get well without interference by operation, that

generally it is possible to differentiate the more acute cases from those less so, and that the cases in which we are likely to be led astray occur mostly in children upon whom we may properly therefore operate earlier and with less reserve than in older patients.

An acute perforative case generally begins with very severe diffuse abdominal pain, followed by or associated with extreme pain and tenderness in the right iliac fossa. Vomiting is almost certain to occur, and whereas in Classes I. and II. it may be expected only once or twice, or perhaps not at all, in this variety repeated vomiting is common, and is a symptom of great importance. The temperature will run up sharply three to five degrees, the pulse will quicken to 110, 120, or more; the patient's face shows that he is very ill. It may be possible to detect the swollen vermiform appendix, but this will depend upon the will and the ability of the patient to relax his muscles. With a history such as I have recited, perforation may be expected to be imminent, if it has not actually occurred. In the first 24 hours of the attack, while the diagnosis is being formulated, the patient should be kept rigidly in the horizontal position. Little nourishment should be administered by the mouth, and no attempt should be made to empty the bowel either by purgatives or by enemata. If at the end of that time it is clear that the vermiform appendix is the starting point of the mischief, the question of operation should be seriously considered, and arrangements should be made for carrying it out at any time. In children the fatality is so great from acute perforation, and its certain recognition in them so difficult, that I would advise operation, even at this early date, as involving the patient in less risk than delay. If the patient is older some delay is allowable, provided always that he can be kept fully under observation. He must be seen every few hours, so that any advance of the symptoms may be recognised and acted upon. No disease requires such careful watching if we are to intervene at a time when success is to be hoped for—that is, when the diagnosis of acute perforation, actual or potential, can be made, and general infection of the peritoneum has not yet set in. If, after a further period of observation—it may be only of a few hours, it may be for a couple of days—the symptoms become aggravated, or, if they do not abate, then further delay in operating is unwise and dangerous. The symptoms on which stress should be laid are persistent extreme tenderness over the vermiform appendix, vomiting which recurs despite careful feeding, elevation of temperature, quick pulse, and persistent abdominal face. The presence of these, or even some of them, in my opinion, calls for very early operation, and the call becomes more urgent if

the belly is becoming generally rigid and tender, or if there is distension commencing at the right iliac fossa, or if a sudden increase of pain is felt in the same region.

With typical symptoms such as I have sketched, the recognition of an acute perforative lesion is as a rule not difficult. When these are atypical, and some of the characteristics are absent, it is that difficulty arises. There may be no characteristic general colic, but pain from the first quite localised to the region of the cæcum. Or after general abdominal pain, pain and tenderness may be felt in both iliac regions, or it may be chiefly in the left. Again, the patient may not vomit at all. The great point in recognising these cases is not to regard any one indication as essential to diagnosis. It is desirable to dwell, not so much upon the absence of one particular feature, as upon the intensity of those that are present. I would lay the utmost stress upon an unaccountably quick pulse or intense tenderness (unless it were evidently a very neurotic patient) in the right iliac fossa, or a bad facial expression. If a fall in the temperature seems to indicate improvement, which is contradicted by remaining or increasing quickness of the pulse, it is the adverse symptom that should receive most attention.

In any acute case, when from the rigidity of the abdominal muscles it is uncertain whether there is an inflammatory swelling in the right iliac fossa or not, chloroform should be given for a thorough investigation. Of course, the patient being anæsthetised, and the surgeon having discovered the local trouble, he will probably proceed forthwith to operate; he should certainly be prepared for this, or defer his examination until he is. Examination bimanually with a finger in the rectum or vagina will tell more in some cases than mere abdominal palpation.

So far I have considered only the symptoms that may be expected before a diffuse peritonitis has arisen. I have already alluded to the difficulty which may exist in coming to a conclusion in some cases as to whether the inflammatory process is still localised to the right iliac fossa. If diffuse peritonitis exists in the later stages, there is no room for doubt. The persistent vomiting, the generally distended and tender belly, the absence of vermicular movements in the intestine, the complete obstruction, the quickening pulse, the Hippocratic face, all point to the diffuse septic inflammation.

Operation having been determined upon, how is it to be carried out? The position of the incision will be determined in the first instance by any tumour or thickening which can be felt. It is above all things important that the incision shall be as directly as possible on to any inflammatory collection and that there shall be little disturbance of parts around it.

This is the main secret of operating successfully on acute perforation without general peritonitis. The line of the incision should be somewhat oblique from above downwards and from without inwards, and after the division of the aponeurosis of the external oblique most of the fibres of the deeper muscles can be separated without much cutting, so as to leave as little weakness as possible in the abdominal walls. It goes without saying that the general abdominal cavity is opened. The edges of the wound are now held open with retractors, and the finger carefully separates the coils of intestine to reach any thickening which may be recognised. This will probably set free a septic collection of thin pus or turbid serum, which must be carefully sponged up as fast as it escapes, the patient being at the same time turned well on to the right side to direct the fluid away from the general belly cavity. After the collection has been thus removed, the appendix itself must be sought at the bottom of it. It will often be found quite free or partially encircled by a fold of omentum, and should be secured as near to the cæcum as can safely be done. It may be desirable to transfix the base of the appendical mesentery with an aneurism needle threaded with a double ligature, one half of which is tied round the base of the mesentery, the other round the appendix. If the appendix is not easily found no extensive search should be made for it, or the whole purpose of the operation—the prevention of septic infection of the peritoneum—will be defeated; it is so easy for the exploring finger to carry infection where it did not previously exist. For the same reason irrigation should not be used, but the cavity occupied by the inflammatory collection should be carefully cleansed by sponging. Whether the vermiform appendix has been removed or not, the empty cavity should be drained without exception. I generally use an india-rubber tube for the purpose, sometimes supplementing this with iodoform gauze packing. The upper portion of the wound should be closed with sutures, and the more effectively this is done the less likelihood is there of subsequent hernia at the scar.

If general peritonitis exists at the time of operation, the course to be followed is somewhat different. I have seen success follow median incision and drainage only, but notwithstanding this, if the patient's condition permits it, the perforated organ should be removed at the same time. If both manipulations are not permissible then median drainage should be preferred. When the appendix has been removed and the abdomen opened in the middle line, irrigation is called for, but it should be done with care, so that if the highest part of the peritoneum is not involved, as I am sure is sometimes the case, it may not be contaminated by the surgeon's manipulations. Satisfactory

irrigation is not easy. It must be done systematically, first in one region, then in another; the hand must pass between the intestinal coils, allowing of the flushing out of the purulent pockets between them. Above all, the lumbar pouches and the pelvis must be thoroughly emptied. A drain should be placed in both incisions.

During the progress of the case, after a period of well-doing, the patient may begin to lose ground. The quick pulse returns, the temperature again rises, there is sweating and an ill-looking face. The abdomen should be carefully examined for some collection which is not draining. This may be found in the pelvis or either loin, but the commonest region is by the ascending colon, where it may track up as high as the liver. I have seen an extensive collection between this organ and the diaphragm, although the rest of the belly cavity was doing well. Any collection such as I have indicated should at once be drained by direct incision.—*British Medical Journal*, *June* 8, 1895, *p.* 1254.

67.—EXTIRPATION AND COLOTOMY IN CASES OF CARCINOMA OF THE RECTUM.

By Lewis H. Adler, Jr., M.D.; Professor of Diseases of the Rectum, Philadelphia Polyclinic and College for Graduates in Medicine; Surgeon to the Charity Hospital, Philadelphia, &c.

[This paper was read by Dr. Adler, before the American Medical Association, 1895.]

Colotomy and extirpation are two recognised procedures for the relief of malignant disease of the rectum. Both operations offer the patient a chance of prolonging life; and, in addition, extirpation holds out the possibility, in selected cases, of effecting a radical cure. The choice between these two methods is a question of uncertainty only in a relatively small group of cases. Extirpation is not to be considered in the majority of instances, for the reason that the disease is usually an incurable one, and, by virtue of its concealed position within the rectum, its presence is not revealed or even suspected until the growth has existed for some time. Furthermore, it is rare for carcinoma of the rectum in its incipiency to manifest itself by any symptom pointing to a lesion within the bowel. This is a familiar observation to all surgeons. It frequently happens that a patient comes complaining of slight diarrhœa or other mild rectal trouble, and an examination unexpectedly reveals

the fact that carcinoma is present to such an extent that it is obvious that the neoplasm has existed for a considerable period. Consequently its complete removal is often rendered impossible. Again, the patient's vitality is such that so grave an operation as excision, requiring considerable time for its performance, is contra-indicated.

In arguing thus I would not convey an impression that I am opposed to extirpation for malignant disease of the rectum in suitable cases. On the contrary, I firmly believe it to be a perfectly justifiable operation when the growth is circumscribed and confined to the lower four or five inches of the bowel; provided, however, that the tumour does not involve all the coats of the intestine, that it has not attacked the viscera which are intimately associated with the anterior wall of the rectum, that it has not invaded the pelvic glands or, by metastasis, any of the other organs of the body, and, finally, that its growth be not rapid or have a tendency to spread widely. From these considerations it naturally follows that the number of patients who can be benefited by excision of the disease is comparatively small.

Colotomy, on the other hand, is indicated in a large number of instances in which it is quite impracticable to attempt an excision. The advantages of the operation lie partly in the relief it affords to symptoms and partly as a means of retarding the growth of the neoplasm. To indicate the relief afforded such patients by colotomy I cannot do better than quote the opinion of Kelsey on the subject, as expressed in the fourth edition of his work, *Diseases of the Rectum and Anus*. This authority is not only a strong advocate of the operation, but is also in a position to judge of its merits by reason of his large experience. He thus states his views:—"As to the benefits arising from the operation, too much can scarcely be said. That it prolongs life by the relief of pain, the preventing of obstruction, and retarding the growth of cancerous disease, is beyond question. That it substitutes in many cases a painless death for one of great agony is indisputable. The idea that it is as well to let a patient die as to subject him to a colotomy has no supporters among surgeons who have had any experience with these cases. Indeed, I think that the practitioner who to-day sat by and allowed a patient to die of obstruction because of any sentiment against this procedure would hardly be held blameless. I can only say that, after trying every other means of treatment, and being obliged to admit the fruitlessness of them all, I have come, with most others, to admit the great benefits of colotomy, and have never performed it in any case in which either the patient or myself has afterwards regretted it."

In another article, Kelsey mentions even more minutely the advantages of this operation as follows :—"Colotomy, especially inguinal colotomy, relieves pain ; does away with the constant tenesmus and discharge from the rectum, which, by their exhausting effects are the immediate cause of death ; delays the development of the disease by preventing the straining and congestion of defæcation ; prevents absolutely the complication of intestinal obstruction, which is another cause of death ; enables the patient to sleep, eat, and gain flesh, and often makes him think himself cured in spite of the plainest prognosis to the contrary. Instead of passing his days and nights upon the commode, wearing out his life in the effort to free the bowel from the irritation, he has one or, perhaps, two solid fæcal evacuations from the groin in 24 hours."

In conclusion, I would allude to one more topic, to wit :—The choice of sites of opening the colon. I mention this subject with the sole purpose of eliciting the present views of the members of this society. My own belief is that the inguinal region is to be preferred in the majority of cases. Its advantages over the lumbar operation are, to my mind :—(1) The smaller incision and lesser depth of the wound requisite to reach the colon, and the minimum amount of disturbance of the structures overlying the seat of operation ; (2) the greater facility offered for the exploration of the abdomen, when such a procedure is required ; (3) the better position for safe anæsthesia during the operation ; (4) the comparative ease with which the colon may be identified in this position, and the little difficulty experienced in fixing the bowel to the skin without undue tension on the stitches ; (5) the greater readiness with which a good spur may be formed ; (6) the convenience of the patient of the site, for purposes of cleanliness and for the adjustment of pads ; and (7) recent statistics seem to indicate that it is the less dangerous operation.—*Medical News*, *July* 20, 1895, *p.* 63.

68.—ANAL FISSURE OR ULCER.

By Harrison Cripps, F.R.C.S., Assistant Surgeon to St. Bartholomew's Hospital.

[In a demonstration at St. Bartholomew's Hospital, London, Mr. Cripps made the following remarks :]

These ulcers may be situated in any part of the anal circumference, but in nine cases out of ten they are in the middle line behind. They are never very large, being seldom bigger than half the size of a threepenny piece, and are placed so that

half their circumference is on the mucous membrane and half on the muco-cutaneous surface. They vary in depth, the recent ones extending only just through the superficial membrane. In the older ones the submucous tissue is destroyed, so that the fibres of the external sphincter muscle are visible at the base of the ulcer. Sometimes on examination in place of an ulcer a little hole may be seen, and on passing a probe into this it will be found that the muco-cutaneous surface is detached over a little space, the ulcer being covered in as it were by the surface tissue. These cases are of the utmost importance, for the little orifice leading to the submucous ulcer is readily overlooked, and I have seen many cases where, on account of this, the patient has been told that there is nothing wrong with the part. The way to examine a patient with symptoms of fissure is to get them to the edge of a couch in a good light, and then, telling the patient to strain down, the anal folds should be gently drawn apart with the fingers. The lesion then can be clearly seen ; generally, just external to the site of the ulcer, will be found a little rose-coloured œdematous fold of skin. On no account should the finger be passed at the time of the mere examination. The sphincter spasmodically contracts, and exquisite pain is caused. If there is any suspicion of disease higher up the bowel, it should be examined under an anæsthetic at the time of operating on the fissure.

If a patient has the characteristic pain caused by anal ulcer, and yet nothing can be seen at an ordinary examination, the patient should not be pronounced free from disease till a second complete examination under ether has been made.

Treatment.—This may be considered as palliative and operative.

Palliative.—If the case has been of comparatively recent origin, if muscular fibres are not exposed, and there is no undermined muco-cutaneous surface or sinus present, there is a fair chance of a cure being effected by simple remedies. The motions must be kept soft by a laxative ; a teaspoonful of the confection of senna early every morning is effective. Capsules of 15 to 30 drops of the fluid extract of cascara sagrada may be taken at bedtime, or the following dinner pill : Pil. col. co., gr. x ; pil. rhei. co., gr. xx ; mix, and divide into six pills, one to be taken at dinner time. The anus should be gently washed with soap and water night and morning, and on no account should paper be used in the closet, the part being cleaned with a sponge or cotton wool and water. Two ointments may be prescribed ; the one a soothing ointment to be applied five minutes before the motion is passed, the other an astringent ointment to be used at night. It is better for the patient to apply this with his finger than by any form of ointment introducer, for the ulcer is just at the orifice, and if the patient strains down it

can be effectually applied. Six grains of morphine to an ounce of unguentum petrolii is a good soothing ointment ; for an astringent ointment subsulphate of iron, 10 grains to an ounce may be used, or tannic acid in the proportion of 20 grains to the ounce. Another ointment I have seen occasionally effectual is 15 drops of carbolic acid, 10 grains of powdered camphor to the ounce of simple ointment or unguentum petrolii. *Operative.*—Palliative treatment may have failed, or the case from the first may be one better treated by operation. If the ulcer is of old standing and the muscular fibres exposed, or if the edges be undermined or a sinus present, palliative treatment is mere waste of time, for by an operation properly performed the patient may be cured. It should be done as follows : At bed-time two days preceding that of operation the patient should take two pills (pil. col. co. gr. iv, pil. rhei. 10 gr. vi, mix, and divide into two pills) ; this will ensure the bowels being well opened the day before the operation. On the morning of the operation, and an hour before its performance, the bowels should be washed out by an injection of a pint of hot water. The patient being under ether in the lithotomy position, the sphincter is gently dilated. The ulcer is now thoroughly examined with a fine probe to see if any fistulous tract exists, and the extent to which the edges may be undermined. If a sinus exists it must be laid open ; if there is no sinus, or if present after it has been divided, a speculum is introduced into the rectum. The surface of the ulcer is then divided in the middle by a clean cut. The incision should commence on the mucous membrane half an inch above the ulcer, and end on the skin half an inch or a little more below it. The depth should be such as partly to divide the external sphincter, and to accomplish this it would have to be at least a third of an inch in depth in the middle. It is quite true that in many cases a more superficial incision will suffice, but as superficial incisions are often insufficient, it is better to make a bolder one at once. Moreover, the depth of the wound makes little difference in the time taken up in its healing. After the incision has been made, a narrow strip should be cut with a pair of scissors off the two edges, which will otherwise overlap and interfere with the healing. A strip of lint smeared with eucalyptus ointment laid in the cut, and covered with a pad of aseptic cotton wool, completes the operation. For a fortnight the patient should be kept in the recumbent position, and as in all other rectal operations, the wound should be thoroughly washed and redressed night and morning. A dose of castor oil is given to open the bowels on the fifth day, and after this a mild laxative every alternate evening. When the patient is allowed to get up it will do him no harm to walk about a bit, but he should

sit as little as possible till the wound is completely healed. Nothing retards the healing of a rectal wound so much as the congestion produced by long sitting.

No doubt it will be thought that the operation and subsequent treatment is rather elaborate for so small a lesion as an anal ulcer. It is quite true that many of these cases are cured by caustics, slight scarification of the surface, or simple dilatation; but if you wish to do the best for the patient and yourself by making a certainty of the cure, let me advise you to try no half measures, but perform a carefully-planned operation, as otherwise you will certainly from time to time have a percentage of failures.—*British Medical Journal*, *July* 20, 1895, *p.* 121.

ORGANS OF URINE AND GENERATION.

69.—ON THE HYSTERICAL BREAST.

By Professor Gilles de la Tourette.

[This abstract of the author's paper is taken from the *New York Medical Journal*, June 29, 1895, p. 829.]

In the *Nouvelle iconographie de la Salpêtrière* for March and April there is a long and interesting article on this subject by Professor Gilles de la Tourette, who remarks that this affection should be ranked among the trophic troubles allied to hysteria and closely connected with œdema. It constitutes, he says, one of the most interesting manifestations of the neurosis, especially from a surgical point of view. The hysterical breast has led to many errors in diagnosis, followed occasionally by the ablation of an organ which, under the circumstances, was amenable only to medical intervention.

Hysterical breast, says M. de la Tourette, like arthralgia, is a type of local hysteria. In its ætiology, contusion of the organ will often be observed. The local traumatism influences the mental state of the patient, who is only too ready to favour this localisation. Apart from these cases where the occasional cause may be recognised, there are others in which we have only the common ætiology of hysteria. The symptoms often exist in women who suffer with painful menstruation, who present hyperæsthetic or hysterogenic zones of the vagina or of the neck of the uterus. It is certain that disturbances of the latter may singularly influence the organs of lactation and produce there hysteria. Nearly always one breast alone is attacked, although Frederic Hoffman and Liouville have observed cases where the two breasts were involved at the same time.

The hysterical breast consists of a temporary or permanent increase in the size of the organ with considerable hyperæsthesia of the skin. It is a question of a hyperæsthetic, hysterogenic zone the excitation of which leads, in the majority of cases, to convulsive paroxysms. At the moment of the attack a series of vaso-motor symptoms are produced locally which begin with simple congestion and lead to œdema, sometimes, perhaps, to gangrene of the skin. Hyperæsthesia of the skin of the breast does not differ from that of the skin of other parts of the body. It is much more marked when a slight, superficial friction is applied; sometimes it is so exquisite that the patients can not bear their clothing to touch them, although in certain cases the pressure of the corset seems to give relief.

The hyperæsthesia is permanent, but it is more marked at certain times under the influence of causes which usually control the excitation of the hyperæsthetic zones that are transformed then into hysterogenic zones. Direct pressure and acute emotions may cause the zone of the breast to become active in the same way that it feels the influence of the excitation of the neighbouring zones or of those which, situated near the vagina or the uterus, become excited during menstruation. At the moment when, under the action of these various causes, the zone of the mammary region becomes excited, it or the breasts become spontaneously the seat of a pricking sensation and of darting pains which are very severe and of a neuralgic character. The breast becomes tumefied, the nipple is erect, and the entire organ increases to almost double its size. Frequently the pain does not remain localised, but radiates to the axilla, to the spine, &c. The skin at this period, according to Brodie, is not red, but somewhat pale and shiny. Liouville said that it was hot, red, and tense. Féré held the same opinion. The aspect of the skin may be variable, according to the cases, during the paroxysms or in the intervals. The tumefaction and other symptoms are not always limited to the duration of the paroxysm itself. In simple cases, or when the affection is just beginning, the swelling disappears with the painful attack, but more frequently, especially if the attacks follow each other closely, the tumefaction persists in variable degrees during the intervals between the paroxysms, and the attacks are always accompanied by this exquisite cutaneous hyperæsthesia, which is excited under the influence of various causes. In these cases palpation reveals interesting peculiarities. During the attack it is almost impossible to palpate the breast. The pain is much too acute to admit of a reliable examination. But it is not so in the intervals between the paroxysms, especially if care is taken to palpate the gland deeply and not

superficially, as the cutaneous irritation is likely to produce excitation of the hysterogenic zone.

Hysteria of the breast, says M. de la Tourette, is very tenacious, and its duration may be very long. It is known, moreover, how difficult it is sometimes to remove a mark of the nature of a hyperæsthetic zone, and the hysterical breast is nothing else than the reaction of a special organ under the influence of a zone of this kind. This affection is perfectly characterised and depends on the hyperæsthetic and hysterogenic zone of the skin of the mammary region and on an œdema of the connective tissue of the gland, which may assume a white, a red, or the violet colour of hysterical œdema. Apart from this form, where the swelling of the breast is uniform, there is another form susceptible of the same interpretation. In this the œdema is hard and localised more particularly in certain points under the form of tumours which are not accompanied by ganglionic engorgement unless there is ulceration.

If these peculiarities are considered, says the author, the diagnosis should scarcely be doubtful, although amputation has been practised several times, and it is still advised at the present day. M. Péan, he says, practised partial amputation of the breast in a young hysterical girl in whom palpation had revealed some nodes. The pains persisted after amputation, however, becoming more violent during the hysterical attacks, which were coincident with menstruation. This fact, says M. de la Tourette, proves that surgical intervention should be condemned. The author has ascertained, moreover, that the microscope does not reveal anything abnormal in the amputated part except a slight proliferation of the glandular elements.

The author relates the histories of two cases from which the conclusion may be drawn that the prognosis of hysterical affection of the breast is relatively grave, since not only may it extend over a period of twelve years, as was shown in one case, but may give rise to gangrenous symptoms that may cause adenitis and fistula by secondary infection.

70.—THE RESULTS OF OPERATIONS FOR CANCER OF THE BREAST.

By Thomas Jones, B.S., F.R.C.S., Surgeon to the Manchester Royal Infirmary and Professor of Surgery in the Owens College; and

John E. Platt, M.S., F.R.C.S., Resident Surgical Officer, Manchester Royal Infirmary.

[The following is an excerpt taken from this interesting paper. The tables have been omitted.]

Before a correct estimate of the true value of any operation can be formed it is necessary to consider the ultimate results with which it is attended. It is not enough to know what the immediate risks of its performance may be; we should also find out what are likely to be its remote effects. It seems to us that hardly sufficient stress is laid on this matter, and that we are too apt to be satisfied if the immediate results come up to expectation. These remarks apply with peculiar force to the operations performed in cases of malignant disease, and it is very possible that if we were more thoroughly acquainted with the late results of operations in such cases we might pause before we recommended our patients to submit to them. The table [not reproduced here] deals with all the cases of carcinoma of the breast which were operated upon by Mr. Jones at the Manchester Royal Infirmary during a period of ten years (1883 to 1892 inclusive). It gives particulars of the cases when they first came under observation, and also records the results of our inquiry into their after-history. This inquiry has been a work of considerable difficulty and labour, as anyone who has been engaged in similar work will know; the patients have been widely scattered, and difficulties have arisen from changes of residence and from many other causes. The table includes 55 cases, of which more or less information of the after-progress was obtained in 52 cases. In spite, however, of all our efforts we were unable to learn anything more about the remaining 3 cases.

Results of operation.—The ultimate results, so far as we have been able to learn, are as follows:—Deaths soon after operation, 2; patients who have died without recurrence, 2; patients who have died from recurrence, 34; patients now living with recurrence, 8; patients now living and free from recurrence, 6; no further information obtainable, 3—total, 55.

Of the 2 deaths which occurred whilst the patients were in hospital, 1 (Case 42) took place eight weeks after operation from chronic bronchitis and dilatation of the heart. We think that this death ought not to be put down to the operation, since the patient recovered from its immediate effects and progressed favourably until shortly before her death. The other patient (Case 1) died four weeks after removal of the breast from septic absorption from the granulating surface on the chest wall. In this case it was necessary to sacrifice much of the skin over the breast, and a large raw surface was left; at the time there were several extensive burns, with profuse septic discharge, in the same ward. With regard to the technique of the operation, the axilla was opened and infiltrated glands removed in 47 of the 55 cases, and it was not opened in 7. Unfortunately, the notes of the remaining case are very imperfect, and do not give any information upon this point. In 1 case the affected glands so

completely surrounded the axillary vein that a portion of the vessel had to be sacrificed, yet no inconvenience beyond a temporary œdema of the arm was experienced by the patient. In 4 cases only was it deemed necessary to remove a portion of the pectoralis major owing to the extension of the growth to the muscle. In 1 case (No. 37) the tumour, which was situated near the axillary border of the mamma, was excised with some adjacent tissue without taking away the entire breast. This is a method of operating strongly to be deprecated ; it was followed by speedy recurrence of the disease, which necessitated a second operation, and the patient died seven months later. Our rule is to remove the entire breast, to dissect off the pectoral fascia, to remove portions of the muscle if necessary, to examine the axilla through the wound, and if the glands be infected to clear it out completely, the breast and the glands, along with the intermediate lymphatic tract, being removed together in one piece. The assertion is frequently made that the immediate risks to life are greatly increased by opening the axilla at the time of operation. We contend, however, that the clearing of this space need add little, if any, to the risks, provided the proceeding be conducted with due care, and we would again point out that in 47 of our 55 cases the axilla was freely laid open and its contents completely removed, and yet there was only 1 death. In some of the cases the dissection required in order to excise the glands was most extensive, the axillary vein being frequently exposed for some two inches of its length. We hold, therefore, that no operation for removal of cancer of the breast is complete unless the axilla is carefully examined through the wound. If the glands be enlarged, be it ever so slightly, their removal is imperative. To leave them is to court defeat, as early recurrence in this situation must be expected. The only possible objection to the universal adoption of the rule of examining the axilla through the wound would arise from the additional risk involved, and the contention that the risk is greatly increased by this procedure falls to the ground in view of the results obtained. There is one practical point in connection with this part of the subject to which we wish to invite attention. It is this : great watchfulness is required on the part of the anæsthetist whilst the axilla is being cleared out; the amount of shock is sometimes considerable, and it is well not to push the anæsthesia too far at this stage. We have been led to dwell at some length on the mode of dealing with the axilla becauses one sometimes sees cases in which the mammary gland has been successfully removed, but the axilla left untouched or only imperfectly dealt with ; the disease has speedily declared itself in the latter situation, and has advanced with alarming rapidity, thus bringing the operation into disrepute.

Of the patients who recovered from the operation 2 have since died from other diseases without recurrence of the cancer, 1 (Case 27) three months after her discharge from excessive drinking, and the other (Case 43) after eight and a half months from bronchitis. Recurrence, including the 4 patients in whom the operation was incomplete, took place in 42 cases, of which 34 have since died and 8 are alive. The average duration of life after operation in the 34 cases was nineteen and a half months; it was under six months in 5, from six to twelve months in 10, one to two years in 9, two to three years in 2, three to four years in 6, and four to five years in 2. Of the 8 cases now living with recurrence the average time since operation is four years; the longest period is eleven years and six months, and the shortest two years. The date of recurrence after the removal of the breast was doubtful in 8 cases, within three months in 8, three to six months in 7, six to twelve months in 1, one to two years in 8, two to three years in 3, three to four years in 1, four to five years in 1, and after ten years in 1. The recurrent growth was situated in the axilla without recurrence in the cicatrix in 9 cases, it affected the cicatrix on the chest wall or its immediate vicinity in 19, and the internal organs without local recurrence in 4 (lungs 2, uterus 1, and subperitoneal glands 1). The opposite breast became affected by carcinoma in a late stage of the disease in 4 of the 38 cases. Operations for the removal of recurrent growths were undertaken in 11, or just 20 per cent. of the total number of cases; of these, 3 had two subsequent operations. The rule with regard to recurrent growths should be to remove them whenever practicable, and as soon as possible after they are discovered. The remaining 6 patients are living, and show no signs of return of the growth, the time since operation being eleven years and three months in two instances, eight years and four months in two others, seven years in a fifth, and six years in the sixth. Leaving out of consideration those patients who died soon after the operation, those who have since died from independent diseases, and those who cannot be traced, 6 cases out of 48 have no recurrence after periods varying from five to eleven years. If we adopt Volkmann's rule, that, if a patient is free from recurrence three years after the removal of the growth, she is to be considered cured, we can claim that 12·5 per cent. of our cases were cured by operation. This rule, however, is not always correct, for recurrence sometimes takes place at a very late period; one of our cases had recurrence after ten years.

From a careful consideration of the foregoing facts we have drawn the following conclusions:—(1) Cancer of the breast, although a formidable disease, is amenable to treatment by operation, and the proportion of cures so obtained may confidently be put down at 12 per cent. (2) Non-success

after operation is very frequently due to the extensive character of the disease when it first comes under observation ; probably if relief were sought earlier a much larger proportion of cures would be obtained. (3) Moderate enlargement of the axillary glands is no bar to operation or to a successful issue provided they are systematically and carefully removed, and the axillary space thoroughly cleared. (4) It is well-nigh impossible to discover trifling enlargement of the axillary glands by an examination through the unbroken skin. (5) No operation for removal of cancer of the breast can be considered complete unless the axilla be examined through the wound, the additional risks of such a procedure being very slight. (6) The large number of cases in which recurrence occurs locally points to the necessity of very free removal of the disease ; all doubtful skin must be taken away, and great care must be exercised not to leave any outlying portions of breast tissue. (7) Operation is contra-indicated when the whole of the growth cannot be removed, or when the supra-clavicular glands are enlarged. The only condition which might render an operation justifiable under such circumstances would be the presence of a foul cancèrous ulcer, the removal of which is desirable on account of the great inconvenience which it occasions.—*The Lancet, August* 31, 1895, *p.* 522.

[See also *Synopsis* of this volume of the *Retrospect.*]

71.—NEPHRECTOMY FOR TUBERCULAR AND SURGICAL KIDNEYS.

By J. B. Murphy, M.D., Chicago.

The following is a clinical history of the cases from which I secured the kidneys I here present for your examination :—

Case 1.—Mrs. P., age 32, of Dixon, Ill., came under my observation May, 1888. Had complained for the last three months of pressure and pain on the right side just below the margin of the ribs. The pain was of a somewhat intermittent character, at times severe and at times entirely absent, but a sense of increasing pressure on the right side caused the patient to consult a physician. Examination of heart and lungs negative, patient emaciated, abdominal walls drawn in. On the right side a movable tumour the size of a man's fist could be detected at the position of the right kidney. It was somewhat irregular and very sensitive to pressure. It moved up and down about one inch with respiration. The fingers could not be pressed in above its margin, between it and the liver. The urine showed pus in considerable quantity, a few blood corpuscles,

and no renal epithelium ; specific gravity, 1,018 ; quantity in 24 hours, 41 ounces. The lower end of the left kidney could be felt between the hands, was not enlarged, and was slightly movable. The pressure on the side continued during the succeeding week. Urination became more frequent and slightly painful. Temperature in the evening 101, on an average. There was at all times an absence of a history of renal colic. *Diagnosis.* —Pyelonephritis. *Operation, September, 1888.*—Lumbar incision; pelvis exposed, kidney opened and drained ; contained pus, but no stone. I could not succeed in passing a catheter down the ureter. Pus disappeared from the urine for a time, and the patient improved. The tumour diminished in size. After a time the drainage was dispensed with, but the patient was attacked with chills and fever, and the drain had to be re-inserted. Notwithstanding the thorough drainage, every three or four weeks the patient would have an attack of fever. During the attack she emaciated rapidly, and the pus in the urine increased in quantity. The discharge through the tube was offensive. She wore an elastic urinal over the tube. About half a pint accumulated in twenty-four hours, consisting of pus and urine. This was kept up until October, 1894, six years, when the patient finally consented to have the kidney removed. Quantity of urine passed daily through the bladder before operation, 32 ounces, containing considerable pus; urination every hour, day and night. The patient had a chill the second day before operation ; temperature, 105 ; pulse, 134. She had become addicted to morphin. *Operation, October 19, 1894.*— A posterior incision around the sinus was made, and liberation of the urinary fistula down to the perirenal adipose tissue effected ; then an anterior incision along the right linea semilunaris into the peritoneal cavity. Cæcum and colon were then displaced to the right. An incision five inches long in the posterior peritoneum exposed a large indurated mass extending from the lower margin of the liver to the brim of the pelvis, and from the median line to the spinous process of the ilium. The posterior peritoneum was peeled off, drawn forward and sutured to the anterior peritoneal layer, thus shutting off the peritoneal cavity from the field of operation. The process of enucleation was then begun, first on the outer side until the fistula was reached and the adhesion separated, then the upper margin separating it from the liver and gall bladder. Great difficulty was experienced in removing it from the iliac vessels. The tumour was then drawn forward in the wound, the ureter separated and cut off. The induration continued beyond, and embraced the abdominal aorta and venal cava. Twice I had my finger around them, believing they were adhesions. A very careful dissection was then made between the margin of the

kidney and the vessels on the right side; the renal vessels secured and ligated; remaining adhesions separated and the kidney taken out. The ureter was fastened in the lower angle of the wound; the upper angle was packed with gauze, and a small anterior drain of gauze close to the ureter. Gauze drains were used, and the ends retained in the wound. It was the most difficult operation I had ever performed; and I am confident if I had endeavoured to remove the kidney through the posterior incision I should have torn either the iliac or abdominal vessels or both.

The patient's convalescence was uneventful. The morphin was cut off at once, and on the third day the patient jumped out of bed and quarrelled with the nurse for morphin. Still it had no untoward effect on her. The pus has entirely disappeared from the urine. The average daily quantity is 47 ounces. At the time of operation patient weighed 91 pounds; she weighs now 128 pounds. *Pathologic condition of kidney.*—The cortex had almost entirely disappeared; here and there a small nodule of secretory tissue remained. The mass looked like a thick-walled multilocular cyst; some of the pockets had only small openings, accounting for the retention symptoms. The ureter was pervious, but its mucosa very much thickened. The microscopic appearances will be described by Dr. Le Count. The gross appearances were those of a pyelitis with retention.

Case 2.—Mrs. C. applied to me for treatment June, 1894. She had previously suffered from a pleuritis with effusion, which had disappeared; had enlarged glands of the neck, and a family history of tuberculosis. Complained of frequent urination, followed by severe pain; quantity of urine passed in 24 hours, 34 ounces. It contained blood, pus, and tubercle bacilli. An enlarged, slightly movable nodular kidney could be felt on the right side. Examination of bladder, Kelly method, showed a tubercular ulcer around the right ureter and induration of ureter also present. Urine from that ureter contained a large quantity of pus; urine from left ureter normal. *Diagnosis.*—Tuberculosis of the right kidney and ureter, with tubercular ulcer of the bladder. Patient was suffering so intensely that it was decided to remove the right kidney and ureter. This was done with an incision similar to former case, in the right linea semilunaris. The kidney was much enlarged, sacculated, still readily enucleated; vessel ligated, ligatures cut short. The ureter was much thickened and removed to below the margin of the pelvis, was ligated, and a strand of gauze brought from the ureter out of the lower angle of the wound; wound closed with posterior and anterior gauze drain; 48 hours drainage; removed, with result of complete primary union. Patient's bladder symptoms subsided, a very small quantity of pus being

found in the urine ; she left the hospital three weeks after the operation. Two weeks after leaving the hospital the tenesmus set in anew. The pus increased in the urine ; the bladder symptoms increased rapidly in severity until complete control of the sphincter was lost. The position in the wound where the ureter was sewed re-opened. Bacilli were present in the urine. The patient's condition became worse. She died January 10, 1895, with symptoms of uræmia, dropsy, and tuberculosis of bladder. *Pathologic condition of kidney.*—Kidney reduced to a tubercular sac ; all resemblance to a kidney gone ; made very fine sections. The cortex was reduced to a granulation tissue sac, caseous inside. Here and there evidences of tubules with regenerated lining cells, only obliterated glomeruli, the so-called fibroid glomeruli on the outer portion seen. The ureter was not so much attacked by the tubercular process. The muscular walls were in fair condition. The lining was gone and the ureter filled with caseous and necrotic *débris.*

The anterior incision made in these cases I consider of very great importance, as it exposes the field of operation perfectly, and all tissues can be recognised and relations kept well in view. The only advantages which a posterior or lumbar incision has over an anterior are :—(1) The peritoneum is not opened ; (2) drainage. The method I used, of suturing the posterior parietal peritoneum to the anterior before extirpating the kidney, practically closes the peritoneum and makes the operation extra-peritoneal. I believe there is very little more, if any, danger with this method than by the lumbar incision. The posterior drainage is very easy to make after the operation is complete. The removal of an enlarged and adherent kidney from a fat subject through the lumbar incision is a very difficult and trying operation.—Paper read before the Chicago Pathological Society. *The Journal of the American Medical Association, May* 25, 1895, *p.* 800.

72.—THE RESULTS OF TREATMENT OF HYPERTROPHY OF THE PROSTATE.

By Dr. J. William White, of Philadelphia.

[The author read a paper on this subject before the American Surgical Association, in May, 1895.]

He referred to the theory that prostatic hypertrophy is the natural process of age ; according to another view, it is the result of various causes, among others excessive sexual intercourse. Changes caused in the male by the change in the testicles correspond to those in the female due to change in the

ovaries. It was contended that the testicles secrete spermatic fluid for a considerable time after spermatozoa cease to exist in it, and after the loss of reproductive power. The functions of the testicles are twofold, that of reproduction of the species, and that of imparting masculinity to the individual. Dr. White had collected 111 cases of double castration for prostatic hypertrophy. The cases were of the worst nature, and had been treated by different surgeons. One, in fact, had been considered hopeless previous to the operation, and yet the patient was greatly benefited. Among the whole number there were 20 deaths, several of which were due to existing complicating conditions. The following conclusions were formulated :

1. The function of the testes, like that of the ovaries, is twofold : the reproduction of the species, the development and preservation of the secondary sexual characteristics of the individual. The need for the exercise of the latter function ceases when full adult life is reached, but it is possible that the activity of the testes and ovaries in this respect does not disappear coincidently, and that hypertrophies in closely allied organs, like the prostate and the uterus, are the result of this misdirected energy. This hypothesis would increase the analogy between the fibro-myomata of the uterus and the adenofibromata of the prostate, which, from a clinical standpoint, is already very striking, and is further strengthened by the almost identical results of castration in the two conditions.

2. The theoretic objections that have been urged against the operation of double castration have been fully investigated by clinical experience, which shows that in a very large proportion of cases (thus far approximately 87·2 per cent.) rapid atrophy of the prostatic enlargement follows the operation, and a disappearance or great lessening in degree of long-standing cystitis (52 per cent.), more or less alteration of vesical contractility (66 per cent.), amelioration of the most troublesome symptoms (83 per cent.), and the return of local conditions not very far removed from normal (46·4 per cent.), may be expected in a considerable number of cases.

3. The deaths have been 20 in 111 cases, a percentage of 18 ; but of these there seemed to be 13 that may fairly be excluded in an attempt to ascertain the legitimate mortality in patients operated upon under surgically favourable conditions—*i.e.*, before the actual onset of uræmia, or, better, before the kidney has become disorganised by the two factors, rarely absent in advanced cases, backward pressure, and inflammation. This, then, would leave a mortality of 7·1 per cent., which would probably be decreased as advancing knowledge permits of a better selection of cases. It is important to know that even

in desperate cases, which make up this series of deaths, 15 (75 per cent.) showed improvement of symptoms or shrinkage of the prostate, before they died.

4. A comparison with other operative procedures seems to justify the statements that, apart from the sentimental objections of aged persons on the one hand, and the real, entirely natural, and very strong repugnance to the operation felt by younger persons, castration offers a better prospect of permanent return of normal sexual conditions than does any other method of treatment. The relatively greater degree of improvement in successful cases should be considered, as well as the mortality, in comparing the operation with the various forms of prostatotomy and prostatectomy. So, too, should the absence of any risk of permanent fistulæ, peritoneal or suprapubic, and the ease and quickness with which the operation may be performed.

5. The evidence as to the unilateral castration is at present contradictory, but there can be no doubt that in some cases it is followed by unilateral atrophy of the prostate, and in two cases at least this has resulted in a very marked improvement of symptoms. It is worthy of further investigation.

6. Experiments on dogs have shown in nearly every case in which the vas deferens was tied and divided on both sides that without much change in the testicles there was beginning atrophy and considerable loss of weight of the prostate. These experiments need repetition and confirmation, as the absence of corresponding testicular change seems to make the results somewhat anomalous. It is possible that the occlusion or severance of small but important nerves may account for the effect on the prostate.

7. Ligation of the vascular constituents of the cord, or of the whole cord, produces atrophy of the prostate, but in these experiments only after first causing disorganisation of the testes.—*Medical News*, *June* 8, 1895, *p.* 651.

73.—SUPRAPUBIC PROSTATECTOMY.

By Francis S. Watson, M.D., Boston.

[In a paper on the operative treatment of Prostatic Hypertrophy, read before the Massachusetts Society, June, 1895, the author made the following remarks upon the suprapubic operation. It is strange that while Dr. Watson makes frequent reference to authorities on this subject, he entirely omits the name of Mr. McGill of Leeds. Mr. McGill's paper appeared in the *British Medical Journal*, 1889, and so important was this contribution to the subject, that the operation has since

frequently been called McGill's operation. Many of the specimens thus obtained by this late distinguished Surgeon are in the Museum of the Leeds Medical School.]

In opening the bladder the vertical or the transverse cut can be used. I see no advantage to be gained by the latter. The vertical cut into the bladder is to be made between the two sutures already described, with one stroke of the knife, avoiding the veins on the surface of the bladder, if convenient ; no harm of consequence is done if they are wounded, for the congestion of the vessels is so much diminished when the organ is opened that hemorrhage ceases spontaneously as a rule. Up to this point the steps are alike for intravesical operations of whatever nature. In attacking the prostate there are special measures to be taken.

In the first place, much help may sometimes be gained by inspection as well as palpation of the gland within the bladder ; to effect this several contrivances are used. Hurry Fenwick has introduced an instrument, which he terms a caisson. By it is sought the opportunity to work at the bottom of a dry well, so to speak, on a diminutive scale, as is done on a large one in laying the foundations for the piers of bridges, etc. I have never used it and so cannot speak of it from experience. Perhaps because of the partiality of the inventor for his own inventions, I like my own instrument best for this purpose ; it requires a little practice before it can be used with advantage, and I think it is rather more suited to cases of bladder tumours than to the prostatic ones, but it may be equally serviceable in many of the latter.

The removal of the obstructing portions is effected according to their form and size ; formerly, only the parts projecting into the bladder were removed, but it was found that it was necessary to do more if a clear road for the exit of the urine was to be re-established ; a prolongation of the middle lobe into the prostatic urethra is, for instance, pretty constant, and this when present should always be removed as well as the salient part of that enlargement within the bladder. Again it is often requisite to take away more of the lateral lobes than is represented by those parts which project within the bladder. This was at first done by splitting the mucous membrane and capsule over these parts, and shelling out the obstructing lateral portions, if, as often happens, they consist of distinct enucleatable masses (fibro-adenomata) ; if not, by removing them with curette, or biting them off piecemeal with suitable instruments. Later, the same end was accomplished better by the combined oderation, which will be described presently. If there is a salient middle lobe, it can be taken away with scissors, or galvano-cautery, or by the snare.

The combined operation offers greater facility in effecting the removal of the lateral parts of the prostate than either the perineal or suprapubic, alone; it consists in doing first the perineal and then the suprapubic, or vice versa, according to the conditions presented by the individual case. The mucous membrane and capsule of the gland are then incised over the portions projecting into the bladder, the finger of the left hand pushes the prostate up from below while the enucleation of one or both lateral lobes, in turn, is accomplished by the index finger or a blunt periosteum elevator; in doing this there is sometimes very free hemorrhage. The removal will have to be accomplished in some cases with a curette, in others it is not difficult to shell out the growth whole.

Nicoll has modified, and as it seems to me very advantageously, this operation, by not opening either the mucous membrane of the urethra, or of the bladder over the prostate. By his method a sound is passed into the deep urethra to act as a guide, an incision is made into the perineum down to the apex of the prostate, but avoiding the urethra, the capsule of the prostate is then incised sufficiently to admit the tip of the index finger easily.

In doing this, some part of the prostatic plexus of veins is apt to be cut and a more or less severe hemorrhage to result; this may be controlled by packing, while the operator proceeds to open the bladder by the suprapubic cut. Through the latter incision, the prostate is pressed firmly downward by the finger from above, and as much of the lateral enlargements as may be required to give a free exit from the bladder are removed through the lower wound in the manner already described. Hemorrhage is not usually severe; when it is, it is best controlled by means of the tampon of Keyes as modified by Cabot. The tampon consists of a long bit of sterilised gauze folded in squares upon itself. It is placed in the bladder and the thread which runs through all its layers, is carried out through the perineal wound, and upon being drawn tight and secured outside the perineal wound presses upon the bleeding area within the bladder. The second thread is fastened to the upper layer only of the gauze and is led out through the suprapubic wound. When it is desired to withdraw the tampon the lower thread is cut, and the upper one being pulled the gauze is unwound layer by layer without difficulty. This may be done usually at the end of forty-eight hours. In cases in which there is great enlargement of the gland it might on rare occasions be desirable to use Helferich's modification of the suprapubic operation; this consists in resecting the middle portion of the upper margin of the symphysis pubis, the intention of the operation being to give more room to carry out the subsequent steps.

There is finally one other method of entering the bladder, which I think is especially interesting. It is that proposed by Rydygier, and performed in three instances in my own knowledge, once by Dr. Frank Harrington and twice by Dr. Abner Post, of Boston. I refer to making the bladder incision through its peritoneal investment instead of avoiding it. In the three cases referred to above the result was entirely satisfactory, and no harm whatever resulted. The advantages, of course, are that no time is lost in trying to avoid the peritoneum, that more room is afforded, and finally, that when it is desired, there is much better chance of securing first intention of the wound by suture. The bladder should be carefully irrigated beforehand, and a catheter *à demeure* is to be worn for about two weeks afterward.

Two questions remain to be answered. What determines the choice of operation, and what is the chance of success? To answer them we must first know what has been done, and this is set forth approximately in the first table below, together with the mortality attending each method; and next, what is the percentage of cases in which there is restoration of the function of the bladder. This appears in the second table.

	Cases.	Mortality.
Suprapubic prostatectomy, and the combined operation	109	20%
Perineal prostatotomy	29	10%
Perineal prostatectomy	16	20%
Dittel's operation	3	00%

The percentage of restoration of the bladder function after different operations is as follows:—

Suprapubic prostatectomy	nearly	80%
Perineal prostatotomy	,,	50%
Perineal prostatectomy	,,	50% plus.
Combined operation		50%
Dittel's operation		30%

From the above it will be seen that the suprapubic and the perineal prostatectomies have the highest mortality, but that the former has 30 per cent. more of recoveries of bladder function than any of the other methods. This is what we should expect, since the suprapubic and the combined operations are more thorough and more serious than the perineal ones. This, too, must be remembered when reckoning the mortality.

Then again, as Mansell Moullin points out in his last work upon the subject (Enlargement of the Prostate), published in 1894, the mortality of the first half of this series of suprapubic operations was 25 per cent., whereas that of the last half was but 15 per cent.; and Mr. Mayo Robson, in 1894, published twelve consecutive cases with but one death. It must be further remembered that this is the least favourable view of the operative results that will be shown at any time in their

history, should the practice be extended in the future, because this series includes all the operations performed in what may be called the experimental stage of the undertaking, in which it must be remembered they have been applied to those cases only which have already passed into the worst forms of the disease.

Could we collect an equal number in which this operation had been performed earlier, in anticipation of the graver stages, we should no doubt find a greatly lessened mortality.

Then, too, what of the dangers of not operating? We know very well that they are grave, but how great as compared with the operative risk, we know not at all. No one has ever, so far as I know, formulated any extensive observations as to the number of cases of prostatic hypertrophy which had already reached the graver stages of the malady (in which condition, be it remembered, almost all the patients have been, upon whom the radical operations have been performed), and shown the results in the absence of operative, and while continuing under palliative treatment. If such compilation were made, it is my own impression that the comparison would prove favourable to the operative measures, in that particular class of cases.

The choice of operation depends, I think, upon the following factors. First, the age and general condition of the patient. Thus, if we have to do with a very feeble or a very old man, whose term of life is in all probability but a short one at best, we should naturally prefer to operate for drainage of the bladder alone, as described in the first part of this paper. If the patient, on the other hand, is in good general condition, has not yet shown evidence of serious renal trouble, and might, if radically relieved of the obstructing prostate, live for a good many years, then it is right to try the more radical measures; and of these, for the reasons already given, I prefer the combined operation as modified by Nicoll for all cases in which it is necessary to remove considerable portions of the lateral lobes, and the simple suprapubic method, where the median portion alone is involved, and is large. When there is a bar at the neck of the bladder, or a small median enlargement, I think perineal prostatectomy is to be preferred. It will usually be successful, and is a safer operation than the high one. This is the view of the operative treatment of prostatic hypertrophy that I should have given one year ago.

In the last year three new methods have come upon the scene. The first is that of ligature of the internal iliac arteries for the purpose of producing atrophy of the prostate by limiting the blood-supply. Of this I have only to say that it seems to me a thoroughly irrational procedure. The second, suggested by Dr. Mears, of Philadelphia, is ligature of the spermatic cords, with the hope of producing atrophy of the prostate, by

a similar effect to that of castration, but by a lesser operation. Of this method there is not sufficient experience to base a judgment upon at present. The third seems likely to revolutionise the treatment, and may perhaps replace and make absolete all the operations which I have been describing to you. It is that of double castration, proposed by Prof. William White, of Philadelphia, in June, 1893.—*Boston Medical and Surgical Journal*, *August* 15, 1895, *p.* 158.

74.—CASTRATION: A SIMPLE, EASY, AND RAPID METHOD OF PERFORMING IT.

By H. H. Kane, M.D.

Having performed the operation of castration a number of times, both for the radical cure of prostatic enlargement and for other purely local diseases of the testicles, I have of late been following a procedure that affords, I think, manifest advantages over the ordinary operation. This is especially true where the subject is over 50 years of age, and where prolonged etherisation is apt to produce bad after-results. The rapidity with which this operation can be done, consistent, of course, with thoroughness and safety, is, it seems to me, a very important factor in its success. Furthermore, as in the majority of cases where castration is necessary, or at least is performed, every measure that will reduce to a minimum shock or after-calls upon the system for the healing of a large surface, even if a primary union is obtained, will manifestly lessen the primary and secondary dangers of the operation, and yield better after-results.

Professor White states that he has frequently performed the operation for total removal of both testicles in three minutes. This may be possible in the hands of so expert a surgeon as Professor White; but the majority of operators will find it exceedingly difficult, after the patient is etherised, to make the long incision on each side of the front of the scrotum, tie both cords by double ligature, peel out the testicles, and close each long incision by a number of interrupted sutures in three minutes time. This is even more difficult where, as in the majority of cases, there is considerable hemorrhage from small vessels that have been divided or torn through, that must be twisted or ligated.

With a view of reducing the time necessary for keeping the patient under ether, decreasing the shock, and limiting the length of the incision, as well as producing perfect coaptation of the cut edges, avoiding the necessity of drainage-tubes,

insuring union by first intention, and doing away with the consequent drain upon the system where prompt union is not secured, I have recently performed the following operation, and can commend it as both simple and successful:—The pubes being shaved, thoroughly cleansed with soap and water, and rendered aseptic with a one-to-three-thousand bichloride solution, the scrotum is grasped in the left hand, and diagonal incisions of about an inch in length are made upon each side of the root of the penis, commencing just below the external ring. The cord on each side is seized and drawn out by means of a blunt tenaculum, is pierced with a sharp aneurism needle threaded with a heavy double catgut ligature, and is tied each way after the removal of the needle. The scrotum, which has been resting between hot sponges to thoroughly relax the tissues, is then drawn well down so as to include both testicles in the grasp, a Henry's scrotal clamp is applied, and both testicles are removed, together with that portion of the scrotum included in the clamp, to within about an inch of the posterior portion of the root of the penis.

After removing the outer flange of the Henry clamp, the clamp is slightly relaxed, all bleeding points are secured, and the edges are then closed by interrupted sutures of catgut. The two short incisions just below the groin are closed in the same manner, after pulling out and cutting short the stumps of the two cords, and the catgut ligatures, cut off close to the knot, are allowed to drop into the wound. Before applying the Henry clamp and removing the scrotum, it is well, as a matter of precaution, to pass a warm and well-oiled sound into the urethra, so that by no mischance the canal may be injured.

The wound is now dressed with a layer of protective tissue, after having been thoroughly cleansed and rendered aseptic, and upon this are placed from six to ten layers of iodoform gauze, and above this six or eight layers of sublimate gauze. Cutting a small piece of strong cardboard or sole leather into the shape of a horseshoe, and slipping it underneath the scrotum and its dressings, thus keeping them away from the anus, does away with the necessity of a bandage of any kind. Over the last layer of gauze I place a sheet of rubber tissue, perforated so as to admit of the passage of the penis, and thus not only keep the dressings clean in case of any dribbling of urine, but prevent the contamination of the wound in any way. Union by first intention is the rule. The whole operation is performed in a very few moments, and the results are satisfactory in the extreme, the patient's temperature rarely rising above the normal.

I shall soon have the pleasure of reporting five cases of castration for enlarged prostate gland, with full details as to

the measurement of the urethra, size of the prostate gland, &c., with the confirmatory evidence of other physicians who examined the patients before the operations and were present during the same.

The plan suggested by Professor Bryson, of Cleveland, of making deep injections of cocaine into the substance of the cord itself and of the scrotum, and thus making this operation absolutely painless and without the necessity of using ether at all, is a very interesting one, but one which I have tried but once.

June 7.—Since writing the foregoing I have performed the operation of double castration with slight modifications of the method above described. Instead of using the Henry clamp across the scrotum and making a transverse incision, I placed the clamp from before backward, running from in front of the anus to the root of the penis. After removing the scrotum and testicles, which was very rapidly done, and which was followed by very little bleeding, I closed the wound by interrupted sutures, and this will give, I think, a much better result than the transverse incision. It certainly leaves no pocket for the collection of purulent matter, and the wound practically heals itself. Since the operation there has been no rise in temperature, and the patient, who had been urinating by means of the catheter only every hour for the past five years, was able within twenty-four hours after the operation to go in comfort an average of four hours, and rises from the bed to pass the catheter upon himself. His temperature has not risen above 99° F. The dressings remain practically undisturbed.—*New York Medical Journal, June* 22, 1895, *p.* 786.

75.—ABSTRACT OF NOTES UPON A SERIES OF SEVENTY OPERATIONS FOR THE REMOVAL OF TUMOURS FROM THE URINARY BLADDER.

By E. Hurry Fenwick, F.R.C.S., Surgeon to the London Hospital.

The value of an intelligent and skilful electric cystoscopy in determining the presence and the character of vesical tumours, and in indicating the propriety of removing them, is amply borne out by the results obtained in this series. The following points are submitted for discussion :—

Benign Tumours.—Although benign papillomata of the urinary bladder are characterised by the symptomless appearance of

blood, causelessly and intermittently, in normal urine, yet there are some papillomata which evoke symptoms which markedly resemble stone in the urinary bladder. This deviation from the classical is due to the length of the pedicle or stalk, which favours the free excursion of the tumour, and allows it to get swept into the orifice of the bladder, and to act as a partial or as a complete plug. Benign papillomata, therefore, readily fall into two divisions, the non-obstructive and the obstructive. Of these the former are by far the more common. I hold very strongly that the calculus sound should not be employed in either class. In the non-obstructive group the symptoms are so definite and so dissimilar to stone that its employment in males under 50 years of age is not only useless but detrimental. After 50 years of age cases are encountered in which small, smooth uric acid stones, lodging behind an upraised prostate, produce symptoms similar to those of benign growth, and the sound permissible. In the obstructive group of papillomata a cross-examination of the onset symptoms will permit of a diagnosis of pedicled tumour being made rather than that of stone, and a distinct danger is avoided if the patient's bladder is not interfered with. In the obstructive group backward renal pressure has already been exerted by the plugging ; there is always more or less residual urine, and the sound or the catheter is extremely prone to induce cysto pyelitis.

In all cases in which a vesical growth is suspected it is much wiser to cystoscope in a period of calm between the attacks of hæmaturia, and to arrange that the bladder be full of urine at the time. In all cases of growth, if the bladder has not been meddled with, the urine in these intervals will be seen to be quite clear, and the growths are exhibited to their best advantage. Failing a cystoscopy, a fingertip-sized opening suprapubically is the best method of examination.

Operation.—The best results have been obtained in cases which have not been sounded or catheterised. I am sure that the true surgery of the disease is to make the operation coincident with the examination. All those cases in which the operation has been performed immediately after the cystoscopy have done well. These remarks apply equally well to operations for the removal of stone from the bladder.

Routes.—Women seem more prone to produce pedicled papillomata than men. Many of these growths can be cleanly removed through the dilated urethra, either with forceps or through cannulæ, but the surgeon should always obtain permission to operate through the vaginal septum or suprapubically in case he should find that the base is extensive or the pedicle very thick. In men the only certain and surgical route is the suprapubic. It is advisable in every case of subsessile or pedicled

growth to remove the base cleanly, either by cutting or by crushing and cutting. The curette is only indicated in large sessile patches or secondary minute patches. The bleeding from the base of the ablated tumour should be arrested before the patient leaves the table. The best means to effect this is probably a silk ligature left hanging out of the bladder or the application of iron through a Keith tube. I have reason to believe that the munching or squeezing of the healthy mucous membrane in the neighbourhood of the growth fosters the appearance subsequently of growth in the traumatised areas. It is questionable whether the removal of a small sessile patch is advisable in the male before 32 years, as the rate of increase of sessile patches is often very slow. To determine this question, the cystoscope is of the utmost value. The longer the history of a non-obstructive tumour the denser will its structure be found to be.

Malignant Growths.—The opinion I expressed in 1893 regarding operative interference of malignant growth has not been modified by wider experience. The hard slow-growing single button of carcinoma can be removed with a fair prospect of successful delay of the course of the disease, provided that the base and submucous tissues beneath the tumour be removed with the knife. Munching the surface of a carcinoma and leaving the base is tantamount to an increase in the rapidity of its growth. Malignant growths situated on or near the trigone do not repay removal, and always resent interference. If they obstruct they had better be treated by suprapubic drainage. All infiltrating growths as detected by rectal or by bimanual examination under ether, all multiple or "contact" growths as discovered by the cystoscope, are inoperative. Small, single, indolent malignant growths may be removed even when they have so far advanced as to become glued to the muscle coat, provided that the entire thickness of the subjacent bladder wall be resected with them. This is, of course, only feasible in the anterior, lateral, or posterior wall of the middle and upper zones. When the peritoneum is included in the ablation, free drainage of the bladder must be maintained in order to afford the bladder wound time to heal.

As an example of the value of resection, I may mention that I ablated a large piece of the left lateral wall of the bladder for epithelioma two years ago. The patient is still at work and in good health.

Results.—These 70 ablations include recurrences. I have had 5 deaths, 2 as the direct result of the operation. The remaining 3 deaths occurred in carcinomatous cases at or about the third week after the operation, the patients dying of renal complications. —*British Medical Journal*, *October* 12, 1895, *p.* 906.

76.—SUPPURATIVE ORCHITIS DUE TO THE GONOCOCCUS.

By A. Routier, Surgeon to the Necker Hospital.

After some preliminary remarks concerning the frequency with which urethritis, whether simply inflammatory or due to the presence of gonococci, was complicated with an inflammation of the spermatic apparatus, commonly called orchitis, in which, however, the epididymis is affected and not the gland itself, M. Routier said that he would not have called attention to these very common affections had there not been at the time in the hospital a case of orchitis in which suppuration had taken place. The causation of the orchitis in the case was undoubtedly blemorrhagia; the patient was 35 years of age, strong and healthy, with no suspicion of tubercle; he had been admitted for a left epididymitis—this had shown itself four days after the gonorrhœa, which was his first, and had been intensely painful. The orchitis itself was very agonising. I was enabled, however, said M. Routier, to make certain there was nothing abnormal about the affection; the epididymitis presented the usual form of swelling, there was very little fluid in the tunica vaginalis, the cord was moderately enlarged, the corresponding vesicula seminalis was neither very swollen nor very painful. The great pain constantly complained of by the patient was ascribed to special sensitiveness, and he was put under ordinary treatment. A trial was made of a newly invented suspensory bandage, exercising slight compression, but the patient was only able to stand up for a few moments with it on. On the following days the excessive pain continued, the swelling increased, the man became feverish with great rises of temperature, and above all his general health was much affected—he grew perceptibly thinner. All this made me think we had to deal with a tubercular affection; what seemed, moreover, to confirm this diagnosis was the appearance of an abscess in connection with the epididymis; the abscess was opened, the pus being carefully collected. I may mention as a special detail that two cores formed by the tubes of the epididymis came away from the abscess cavity, which afterwards healed up rapidly. Now comes the most remarkable part of the case. I naturally expected to hear that bacteriological examination had revealed Koch's bacilli; you can imagine how surprised I was when my house-surgeon, M. Benoit, told me that not a trace of Koch's bacilli had been found, but, on the contrary, that the pus contained gonococci. In the recent manual on bacteriology by M. Wartz, two authors, MM. Hugounenq and Eraud, have described in gonorrhœal epididymitis a pathogenic agent differing from

Neisser's gonococcus, and which they have called orchiococcus; suppurative epididymitis, however, is not mentioned in the case we are now considering, and (on this point I must lay great stress) the pus contained Neisser's gonococcus. Moreover, the subsequent clinical history confirmed the bacteriological examination. As soon as the abscess was opened the relief was instantaneous, the fever and pain disappeared, strength returned, and the patient began to put on flesh; in a week he was a new man, and went out in better general health than on admission. The presence of the gonococcus in the pus of this epididymitis seems to me to have a very important bearing on the causation of the affection, which as yet is quite hypothetical. You are aware that the idea of metastasis has been abandoned, yet when it is affirmed that the disease is carried from the urethra by continuity of the mucous membrane, no proof of the hypothesis is given. I believe we can now furnish this proof, and I think it must be admitted that epididymitis is due to the penetration of the gonococcus into and through the spermatic canals. We seem to possess a confirmation of this theory in the liability of urethral discharges to relapses which might be explained by the hypothesis of a seemingly cured gonorrhœa reappearing through the influence of the secretion of infected ejaculatory canals. I am perfectly certain also that the gonococcus having invaded the spermatic tracts can sojourn there without setting up an orchitis.—*Medical Press and Circular*, *July* 31, 1895, *p.* 105.

AFFECTIONS OF THE EYE AND EAR.

77.—TOBACCO AMBLYOPIA.

By A. Maitland Ramsay, M.D., F.F.P.S.Glasg., Surgeon, Glasgow Eye Infirmary; Lecturer on Eye Diseases, Queen Margaret College, University of Glasgow.

[The following is taken from Mr. Ramsay's paper. The case alluded to has had to be omitted owing to space.]

I have recorded this case in full, because from many points of view it is typical and illustrative, and because I have had an opportunity of observing it regularly from the beginning. First of all, it is a pure tobacco case, as for nearly 20 years the patient has almost entirely abstained from alcohol, and it proves that recovery up to a certain limit can take place even although the patient continue all through to use tobacco of light quality and in reduced quantity; but it also proves that when the use

of tobacco is unduly increased a relapse will follow, while the addition of a concentric contraction of the visual field to the group of symptoms originally noted suggests that, as a result of the prolonged irritation of the tobacco, what was at first a mere functional disturbance has become changed into an organic disease of the optic nerve. In cases of nicotine amblyopia the patients are usually men of from 40 to 60 years of age who have used the stronger forms of tobacco for a number of years. The onset of the symptoms, though sometimes sudden, is usually so slow and gradual that patients have difficulty in determining the exact date of commencement. Those affected, unless suffering from debility arising from some other cause, usually present a strong healthy appearance ; but the perception of the peculiar odour mentioned by Mr. Doyne may sometimes direct attention to the true nature of the case. They rarely admit ill-health ; but questioning brings out that for some time before the dimness of vision was first observed they had been worried and sleepless, and had suffered from loss of appetite and digestive disturbances. In most cases the patients say that they have recently been smoking less ; and Förster believes that tobacco is not so well tolerated during the second half of life as during the period of full vigour. All experience, too, goes to prove that those who are well nourished, sleep well, and in general take life easily are able to use much larger quantities of tobacco than those who are not so favourably circumstanced, and that there are some who, as a result of congenital predisposition, are unable to use even small quantities without suffering from symptoms of nicotine poisoning. Workers in tobacco factories who neither smoke nor chew seldom suffer from amblyopia, and Van Millingen, of Constantinople, affirms that he has never met with a case among the Turks. He thinks this is accounted for rather by their smoking cigarettes than by their using mild tobacco, and comes to the conclusion "that tobacco poisoning is only possible when nicotine in solution is brought into contact with the mucous membrane of the mouth and swallowed." The poisonous effects may, however, as suggested by Dr. Lauder Brunton, rather be produced by the volatile alkaloids formed during the combustion of tobacco. As much stronger tobacco can be smoked in the form of a cigar than in a pipe, cigar and cigarette smokers are probably more exposed to the risk of nicotine poisoning than others, and possibly their comparative immunity arises from the fact that, "according to Vohl and Eulenberg, the tobacco which is smoked in a pipe yields a very much larger proportion of volatile bases, and especially a larger quantity of the very volatile and stupefying pyridine, while in a cigar little pyridine and much collidine is formed, the latter being less volatile and active than

pyridine." In support of this theory I may add that I have never seen a case of tobacco amblyopia in a patient who chewed but did not smoke. In my own experience the patients who suffered most were those who had been in the habit of smoking on an empty stomach the first thing in the morning, in fits of sleeplessness during the night, or during the day in place of a meal. Persons are then in the best condition for absorbing the nicotine or combustion products into their blood, and in the worst condition for resisting their injurious influence. Patients complain that in bright light they are easily dazzled, and that a whitish or yellowish mist rises like a cloud in front of their eyes and prevents them from seeing clearly. In the after part of the day, when the sun is not so strong, this sense of dazzling disappears and vision improves, or at least seems to do so. By-and-bye small print can be read only with difficulty, and stronger spectacles are procured, but with no good result, while at last even the inability to read ordinary-sized type becomes quite decided. The dimness of vision is as pronounced in the one eye as in the other, and this symmetry, being a strikingly characteristic symptom, is of great value in distinguishing amblyopia due to tobacco or other toxic cause from diseases of the choroid, the retina, or the optic nerve, in which both eyes are also frequently affected, but where the diseased condition of the one is, as a rule, much in advance of that of the other. The diminution in the visual acuity varies according to the stage of the disease. At first there is simply a general dimness —a diminution of the light sense—but afterwards vision is reduced to one-tenth or even one-twentieth of the normal. This failure is due to defect in the centre of the field, but of this the patient is not conscious, as he would be if the disease were due to a lesion in the outer layers of the retina. The scotoma then is "negative" or "relative." That the defect is confined to the central, without any contraction of the peripheral, field of vision is in marked contrast to what occurs in atrophy of the optic nerve—for example, in tabes dorsalis, where there is progressive contraction of the field from without inwards. In the former the defect may involve only a very small area, and in the latter the greater portion of the field, so that only the central parts round the fixation point remain useful. The scotoma is transversely oval and usually extends from the point of fixation to the blind spot, and although remarkably constant in size and shape, may occasionally be of larger dimensions and surround the fixation point—the paracentric and the pericentric scotoma of authors. The more profound the amblyopia the larger the scotoma. A true pathognomonic sign, however, is that even when a white object can still be recognised in the centre of the field, there exists a scotoma for colour—green appears grey or

white, pink blue, and red brown, &c. As the disease progresses the colours assume a metallic lustre, and red and green look like silver and gold. Gold and silver coins, however, appear alike. At length, with the disappearance of the power in the region of the scotoma to recognise a white object, all colour sensation disappears, and in the most extreme cases even a candle flame cannot be recognised. The scotoma is now absolute. As, however, the eccentric parts of the visual field are quite normal, patients are often unaware of their colour blindness ; they see a large surface of red or green with perfect distinctness, but when a small square of colour is employed as a test object the defect becomes at once apparent. It is most marked for red and green, least so for yellow and blue, the latter being in many instances recognised perfectly when the former cannot be distinguished. For the purpose of roughly estimating the extent of the peripheral field and detecting the presence of any central defect, I am in the habit of using a series of small white and coloured metal discs, all of which can be fitted into one handle. Of course, where accurate observations have to be recorded, a perimeter must also be employed. In the less severe cases, when the central scotoma is not very pronounced, and the visual acuity not greatly reduced, I am in the habit of employing coloured papers (3 in. by 2 in.) pasted upon a sheet of black cardboard. The colours selected are as nearly as possible complementary. On red paper are fixed green dots and *vice versa*. The patient has no difficulty in recognising the mass of colour, but he is quite unconscious of the dots.

In striking contrast to those changes in the visual field just described are the results of ophthalmoscopic examination. In the earlier stages the optic disc may be hyperæmic and less transparent than natural, but in a large majority of instances the ophthalmoscopic appearances are quite normal. As the disease progresses, however, the natural colour of the nasal third of the papilla contrasts with the greyish whiteness of the temporal two-thirds. In extreme cases the whole papilla may assume the appearance of white atrophy ; but here, in addition to the central scotoma, there is usually some contraction of the periphery of the visual field. Mr. Lawford has recorded nine examples in which atrophy of the optic nerves with contraction of the visual field came on in patients who at first exhibited all the symptoms of tobacco amblyopia. Complete atrophy of the optic nerves is exceptional, and is only met with in those cases in which the central scotoma is large and absolute, and in the late periods of the disease. De Wecker has grouped all cases of toxic amblyopia under the heading of retro-bulbar neuritis, but, as Berry suggests, there are good reasons for doubting the existence of actual inflammation of the optic nerve in many

instances of tobacco amblyopia. It is probable, therefore, that in the simpler forms of tobacco amblyopia the directly hurtful action of the nicotine, or of the products of its combustion, produces a functional derangement of the macular fibres. In severe cases, and more especially in those complicated by alcoholism, anatomical changes in the nerve probably become superadded, and a true retro-bulbar neuritis results. In all such cases, however, in addition to a well-marked and often absolute central scotoma, there is a peripheral contraction of the visual field, and the latter symptom should always be interpreted as indicating the existence of organic disease of the optic nerve, which will sooner or later reveal itself by pallor of the optic disc. Whenever, indeed, in a case of supposed tobacco amblyopia there is found limitation of the peripheral parts of the field of vision, the patient ought to be examined most carefully for any symptoms which would indicate the commencement of disease of the spinal cord—*e.g.*, tabes dorsalis, disseminated sclerosis, &c. As far as my own observations go, all cases of tobacco amblyopia where recovery is not complete will sooner or later exhibit peripheral contraction of the visual field ; and if in such cases the alcoholic element be strong, and the patient's environment such as to debilitate and lessen nerve tone, the atrophic changes in the optic disc are prone to become progressive and vision to be correspondingly impaired.

The prognosis is undoubtedly favourable in all uncomplicated cases of tobacco amblyopia, provided the patient will give up the use of tobacco. In most instances the promise is readily given, but the intention is not always carried out, and after a short period of abstinence smoking is again begun. The resumption of the old habit may bring on a relapse and prolong the convalescence, and when, as in the first case described, smoking in a modified form is persisted in all through the course of the illness, the recovery of visual acuity is never so complete as it would have been if tobacco had been faithfully abstained from. In every instance the progress is slow, and except in very mild cases, where medium-sized print can still be read, six or nine months, or even longer, are required before the patient is able to use his eyes for near work. When the central defect is absolute, it is always wiser, before giving a definite prognosis, to test carefully to ascertain the existence of any concentric limitation of the visual field, and, when that is present, to give a guarded opinion until sufficient time has elapsed to permit the efficacy of the treatment employed to be tested.

In the treatment itself the first step should always be the prohibition of the use of tobacco and alcohol. Complete abstinence is to be desired in all cases, because it must ever be

borne in mind that the result is determined not so much by the actual quantity of tobacco smoked, or of alcohol consumed, as by the capability of the patient for resisting their injurious influence. Some patients affirm that they see better when they are using alcohol than when they abstain, but the wish is mostly father to the thought, and the fact remains that true inflammatory changes in the optic nerve are much more likely to supervene upon already existing functional disturbances in those addicted to over-indulgence in alcohol than in those who rigidly abstain from its use. It ought to be remembered, however, that with many tobacco acts as a laxative, and that when its use is suddenly discontinued, constipation and digestive disturbances are apt to follow. This difficulty, however, can easily be overcome by the use of some aperient medicine. In the early stages, when, although it may not be visible by the ophthalmoscope, hyperæmia of the optic nerve probably exists, the eyes ought not to be used for near work, and the dazzling of which so much complaint is made can be greatly lessened by the use of dark glasses, while the administration of mercury and iodide of potassium gives good results. After six or eight weeks the mercury may be replaced by full doses of nux vomica. Some recommend the hypodermic injection of strychnine, but no special advantage is to be gained by the subcutaneous method of administration, because the good effects that follow the use of nux vomica and strychnine depend more upon their general tonic effects than upon any special action which they may exercise upon the optic nerve itself. After recovery is fairly complete, a quinine and strychnine tonic may be taken with advantage for many weeks, and if the patient be anæmic some ferruginous preparation and cod-liver oil, malt extract, &c., ought to be taken after meals. In addition, everything ought to be done by means of nourishing food in full amount, and of restful holiday with freedom from worry, to promote the patient's comfort and improve his general condition. — *The Lancet*, *May* 11, 1895, *p.* 1174.

78.—CHANCRE OF THE EYELIDS.

By Simeon Snell, of Sheffield.

[The author read this paper, of which the following is an abstract, before the Ophthalmological Society of Great Britain.]

Mr. Simeon Snell said he had collected notes of nine cases of chancre of the conjunctiva, and he related one or two of the more typical, observing that very few of such cases had been reported, though they could not be very rare judging from the

number that came under his observation. The first case was that of a woman, aged 21, with a chancre at the internal canthus, also involving both eyelids, the lower more than the upper. The caruncle was also implicated. The ulcer was the size of a shilling, and there was much induration. The gland in front of the ear and the submaxillary gland were enlarged. She was a nurse, and had probably caught the disease from the infant, the offspring of syphilitic parents. She was engaged to be married at the time, but the marriage was postponed until nine months later. She has been pregnant six times, but has never gone to full time. The sixth child, the only living one, was now $3\frac{1}{2}$ years of age. It was healthy until ten months of age, when it developed signs of congenital syphilis, and had since had fits, followed by paralysis. The patient herself was well and healthy looking, but there was some epiphora marking the site of the chancre. There was no history of her husband having suffered from the disease. The second case was that of a man, aged 30, who came on September 20. He was married, and had had five healthy children. He said he had cut his head open, and had washed the wound with some blood-stained fluid, the accident having occurred in a slaughter-house. A month later a small spot formed, and when he presented himself there was an ulcerated surface, with indurated base and raised edges involving the whole of the outer surface of the right upper eyelid. The præ-auricular and cervical glands were enlarged. The patient suffered, among other things, from an eczematous condition of the penis and scrotum. His wife came in June, 1888, having had lumps in the groin, with ulceration of the tongue, &c. The third case was that of a man, aged 55, with a chancre on the right inner canthus, involving both eyelids at the junction. The præ-auricular gland was indurated. The ulceration healed in six weeks. Nothing was made out with respect to the means of infection, but he lived in a model dwelling-house in which there were only four towels for eighty persons. The other cases more or less resembled those he had related. The ages varied from childhood to adult life, and comprised four males and five females.

[The following gentlemen took part in the discussion.]

Mr. Marshall recalled one case in a man, aged 20, who came with a small ulcer at the margin of the cornea. The glands speedily became enlarged, and the usual symptoms followed.

Mr. Hill Griffiths observed that the interest of these cases was exclusively diagnostic. He saw two or three of them every year, but he never made the diagnosis unless there was an eruption. Failing an eruption, he would feel a doubt as to the nature of the ulcer. They resembled tubercular ulcers, but the induration of the glands was never absent in syphilis. He

pointed out that a vaccine pustule presented very marked resemblance to a chancre, and he had collected half a dozen cases, not yet published, which one would be very tempted to take to be due to syphilis. In the vaccine ulcer, however, the infiltration was much greater, and there was much more discharge; in fact, the process was altogether much more acute.

Dr. Bronner (Bradford) said such cases were not very rare, but the subjective symptoms might be very slight, and patients might recover from the disease without ever coming to a hospital.

Mr. Snell, in reply, contended that with an indurated sore and enlarged glands there was no need to await an eruption before commencing treatment. If the induration cleared up under mercurial treatment that settled the matter.—*Medical Press and Circular*, *June* 26, 1895, *p.* 671.

79.—THE TREATMENT OF DISEASES CAUSING A DISCHARGE FROM THE EAR.

By Dundas Grant, M.A., M.D., F.R.C.S., Surgeon to the Central London Throat, Nose, and Ear Hospital, and to the West End Hospital for Nervous Diseases.

[The following is an abstract of a lecture delivered at the Central London Throat and Ear Hospital:]

Commencing with the treatment of purulent discharges the lecturer recommended, in cases of acute suppurative inflammation of the middle ear, where perforation had taken place and the discharge was established, the clearance of the tympanum in the first place by inflation, then by means of syringing with plain boiled water, or a weak solution of carbonate of soda (or common salt, or boric acid, or borax) followed by the insufflation of a little powdered boracic acid if the perforation was large and the discharge profuse, or the instillation of a few drops of saturated solution of boric acid if the discharge was very slight and the perforation small. If the discharge persisted syringing should be given up in favour of the dry treatment, which consisted in mopping out the secretion by means of a pledget of absorbent wool and insufflating a little powdered boric acid. If, in spite of this, a cure was not effected, and more especially if pain continued, the tympanum should be washed out through the Eustachian tube by means of an intra-tympanic gum elastic tube passed through an ordinary Eustachian catheter, the irrigating liquid being either a solution of chloride of sodium, 1 in 200, or of boric acid, 5 grains to the ounce. This failing,

the opening of the cortical mastoid cells might be necessary, the conditions and treatment of chronic suppuration of the middle ear also receiving attention.

In chronic suppurative inflammation of the middle ear antiseptic treatment should first be thoroughly carried out on the lines already laid down. Should a polypus be present it should of course be removed *secundum artem* by means of a snare. If certainly, or possibly, tympanic, it should not be dragged away, but be cut through, the stump being afterwards treated by a further application of the snare, or of the cutting ring-knife, and lastly by cauterisation with the galvano-cautery or strong perchloride of iron. Before any operative interference with polypi or other growths it was especially insisted upon that the ear should be subjected to antiseptic treatment so as to diminish or remove the possibility of traumatic infection. For this purpose glycerine of carbolic acid diluted with glycerine, or a solution of chloride of zinc, 5 grains to the ounce, in equal parts of water and rectified spirit, or a solution of perchloride of mercury, 1 in 4,000, might be used twice or thrice daily for a few days, all the discharge being removed by means of the soda lotion. Previous to the operation the ear should be washed out, dried out, and then kept filled with a 20 per cent. sterilised solution of cocaine for a quarter of an hour. If necessary, nitrous oxide might be administered. Granulations were best treated by cleanliness and antisepsis, and the application of a small crystal of perchloride of iron, or a minute drop of the strong liquor ferri perchloridi on a little wool twisted on the end of a fine probe. If growing from the walls they might be removed by means of a cutting ring-knife. Caries occurring in small patches called for cleanliness and the repeated removal of granulations. Some authors recommended the application of a dilute solution of sulphuric acid. Mastoid complications called for cleansing, which might be carried out by irrigation, a fine tube being passed through the fistula, if such be present on the posterior wall of the meatus. This should be done with the utmost gentleness, and, should it cause pain or giddiness, should be at once desisted from. The persistence of pain was one of the indications for the operative opening of the mastoid. In case of a perforation in Shrapnell's membrane granulations should be carefully removed, the discharge should be syringed out by means of a tympanic syringe—Milligan's being one of the best—and boracic acid or iodoform powder should be introduced either by means of a minute powder-blower or of a fine probe. Should this be insufficient, and a considerable time might be necessary, the removal of carious ossicles or the scraping away of the outer wall of the attic had to be considered, and this with all the greater favour if the hearing power was

very considerably reduced, if the discharge was very persistent, and more especially if the recurrence of pain suggested threatening extension to vital parts. Naso-pharyngeal disease called for appropriate treatment, but it was considered advisable to counteract septic conditions in the middle ear before initiating surgical means for the removal of adenoids or other growths. Constitutional dyscrasiæ were to be treated upon the general principles.

In the discharge of acute diffuse external otitis gentle syringing with borax solution, drying, and insufflating with boric acid was most effective. The narrowing had to be counteracted by means of the insertion for several hours at a time of a pledget of cotton wool dipped in the weak solution of subacetate of lead. The discharge following a foruncle usually yielded very readily to the instillation of solution of acetate of lead, 5 grains to the ounce.

In chronic external otitis the desquamative condition might be counteracted by the instillation of glycerine of borax, the removal of the scales by means of the syringe and forceps, followed by the intillation of diluted rectified spirit gradually made stronger. For the aspergillus rectified spirit containing 1 part per 1,000 of perchloride of mercury was the most efficacious treatment. Meatal polypi might be freely avulsed by means of a snare, granulations cauterised as before described or curetted (with antiseptic precautions), or if of sufficient size snared, spots of caries should be cleared of granulations, scraped, and dusted with iodoform. A sequestrum, if loose, should be broken down and removed piecemeal without force. Granulations surrounding a fistula on the posterior wall should be scraped away, the indications for mastoid operation being kept well in view.

A sticky oozing arising from eczema, when very moist, was best treated by means of powders such as iodol, and when more scaly in character by means of ointment containing iodol or ammonio-chloride of mercury, or, in slight cases, boric acid. Crusts might previously be softened with oil and washed out with a weak solution of soda or of coal tar. Recurrence might be hindered by the application of nitrate of silver painted on in a solution of 15 grains to the ounce of spirits of nitrous ether.

For condylomata dusting with calomel, mercurials internally, and cleanliness were required.

Hemorrhagic discharge from granulations or angiomata called for the treatment of these conditions as already laid down by means of curettes or caustics. When arising from erosion of veins or arteries the deeper parts of the ear would require to be plugged with iodoform gauze, or it might even be necessary to ligature the common carotid artery. Neurotic stigmata were

a small part of the general nervous condition to which attention would have to be directed. In cases of traumatic rupture of the membrane little should be done beyond washing out the meatus with boric lotion, insufflating a little boric powder, and lightly inserting a pledget of cotton-wool.

Sanious discharge from malignant disease would in operable cases call for removal of the growth—excision, scraping, cautery, &c.—and in the inoperable, for cleansing, insufflation of iodoform (crystallised iodoform), sublimed iodoform, of each two parts, with boric acid one part, was an admirable form for dusting recommended by Dr. Davison. It was æsthetically improved by the addition of a modicum of creolin (Waren Tay) and of coumarin. Sedatives were of course required.

The methods employed in cases of chronic suppuration were demonstrated.—*Medical Press and Circular*, *April* 24, 1895, *p.* 431.

80.—THE PREVENTION OF MASTOID DISEASE.

By Charles H. Burnett, M.D., Aural Surgeon to the Presbyterian Hospital, Philadelphia.

[The following is from a paper read before the American Otological Society, July, 1895 :]

Much that is interesting and valuable has been written upon so-called "mastoid disease" and its treatment, but little or nothing on its prevention. It is highly probable that in every case of acute otitis media purulenta there is some involvement of the mastoid antrum in the inflammatory process ; but this, like acute inflammation in the tympanic cavity, will get well if not secondarily infected from without by improper treatment. Hence the prevention of mastoid empyema in cases of acute otitis media resolves itself into the prevention of secondary infection of the acutely inflamed middle ear. It is the duty of the members of this Society to inculcate the idea that the proper treatment of an acute otitis media is largely negative, after either spontaneous or artificial opening in the membrana has occurred and a discharge set in. The inflammation of the middle ear being due to pathogenic germs (streptococci) in the middle ear, to which they have gained access from the naso-pharynx, the endeavour on the part of Nature, generally successful, is to afford them an exit from the tympanum by a spontaneous rupture of the membrana. Then a natural siphonic action sets in, which empties the mastoid antrum and saves the mastoid cavity, if this siphonic current is not stopped by irritative interference. However, inspissation of the lateral

portion of the exudate lying against the inner surface of the membrana, or previous thickening of the membrana, often delays and sometimes prevents spontaneous rupture of this diaphragm. Pain continues, the exudation is dammed backward toward the antrum, and if paracentesis is not now performed within twelve hours of the beginning of the earache, a mastoid empyema may be the result.

It follows, therefore, from what has just been said of the origin and progress of an acute otitis media, that all forms of inflation of the tympana should be carefully avoided in this disease, not only for the welfare of the ear already infected with pathogenic germs, but also in order to avoid forcing similar germs, into the, as yet, unaffected ear. In fact, in many cases of acute otitis media the disease in the middle ear is often a secondary result of the treatment of naso-pharyngeal disease, rather than of the latter disease itself. It will be found, when an acute otitis media occurs a week after the ear on the opposite side has been inflamed, that this result is due to the numerous inflations of the tympana that, unfortunately, most of us have been taught to practice as part of a routine treatment of an acute otitis media. I have long since found it advisable never to inflate the ear, by any method, in either acute nasal or aural disease, because it has proved to be both painful and injurious.

I do not believe it is possible to abort an acute otitis media excepting by a paracentesis of the membrana in the early congestive stage. Sometimes congestion of the auditory canal and of the membrana undergoes spontaneous resolution, in spite of the ill-judged treatment it often receives. In acute otitis dry heat will never do any harm and may give relief. An instillation of ten drops of a warm, watery solution of carbolic acid (2 per cent.) or of mercuric chlorid (1:10,000) may also give relief, if the congested membrana can endure the mechanical presence of such a column of fluid, which, I have observed, it rarely can. Such applications, however, tend to destroy staphylococci, always present in the auditory canal, and thus render the middle ear less liable to secondary infection through the perforation in the membrana when it occurs. As soon as the membrana is perforated and a discharge sets in, or even before this takes place, immediately after paracentesis, we should urge the medical attendant to insert simply a strip of iodoform-gauze or carbolic-acid gauze, an inch-and-a-half long by a quarter-of-an-inch wide, into the auditory canal, for antiseptic drainage-purposes, place a tuft of the same gauze in the concha, and let the ear alone for twenty-four hours, when the same kind of dressing may be reapplied if the previous dressings are moist, or let alone for twenty-four hours longer, if they are dry.

At no time do I syringe the acutely inflamed ear or put anything into it but the dressing mentioned, and I find that the middle ear heals rapidly and the perforation closes. We should strenuously diffuse the idea that all insufflations, moppings, syringings, and instillations, of anything, will now be irritant to the membrana and middle ear, and tend to bring about secondary infection.

We have all seen cases of acute otitis media, treated in the old way by putting various medicaments into the ears, turned into chronic cases, both with and without mastoid involvement; whereas an acute otitis media properly treated is never followed by mastoid involvement, or a continuance of discharge from the ear, but gets well in five or six days. Since January of this year I have seen in consultation six cases of mastoid empyema. one chronic and five acute, all the result of improper treatment of the primary otitis media, by syringing with hydrogen dioxide, insufflation of boric acid, inflation of the tympana, &c.

The members of this Society should spread abroad the valuable knowledge that if dry heat gives no relief to pain, then the only other proper thing to do in acute otitis media is promptly to incise the membrana, preferably under ether. Then drain the canal antiseptically as described, and let the ear alone. We thus can prevent mastoid empyema. Schwartze was the first to sound the note of warning against secondary infection of the mastoid by insufflation of boric acid in acute otitis media, and Gradenigo and Pes have recently written what must ever stand as a classic guide in the rational treatment of acute otitis media, in which they urge what in substance I have presented in this paper. Lermoyez and Helme, too, have shown that even the cotton-tuft on the cotton-holder, twisted by the cleanest of fingers, is loaded with staphylococci, and should be subjected to sterilising processes before being inserted into the ear.

In the face of all this wise teaching, it is most regretable that many of the younger aurists and some general practitioners are apparently vying with one another in their devices for pumpings, syringings, blowings, swabbings, &c., applied to the naso-pharynx and middle ears in acute otitis media. It is not surprising, therefore, that the number of cases of acute mastoid empyema is increasing, and that reports of such cases come in from all quarters, the writers and reporters apparently unconscious that they are detailing the secondary results of their own irritant and infectious treatment, applied either by way of the naso-pharynx or external ear, or by that unfortunately infectious procedure, in the absence of suppuration beneath the mastoid tissues, the so-called Wilde's incision, and, in some cases, by setons, even in this era of antisepsis.

If acute mastoid empyema is not prevented, necessarily we must all continue to observe chronic otorrhœa and chronic mastoid empyema. Here, too, the treatment resolves itself into one directed primarily to the middle ear. Chronic mastoid empyema cannot be cured until the chronic tympanic purulency is arrested. Mastoid trepanation in chronic mastoid empyema, without exposure of the middle-ear cavity and removal of carious and necrotic tissues, is valueless in all instances, even in intracranial lesions, for if the tympanic cavity is allowed to remain more or less full of the carious and infective tissues from which the mastoid caries, the sinus-thrombosis, or the cerebral abscess has arisen, not one of these diseases is radically cured until the infectious nidus in the middle ear is destroyed.

Mastoid trepanation alone does not check chronic otorrhœa. The necrotic tympanic tissues must be removed before the chronic purulency is checked. This is a common observation, not only in mastoid caries, but in intracranial, cervical, and pharyngeal lesions of otitic origin. No operation on the neck or within the cranium in such cases, though it may immediately save the life of the patient, may be of permanent value so long as necrotic tissues are left in the middle ear. This fact aurists should keep before the minds of the profession. But far better than any directions for the cure of mastoid empyema is the proclamation of methods of prevention.—*Medical News, August* 17, 1895, *p.* 169.

81.—DOUBLE MASTOID DISEASE WITH SEPTIC THROMBOSIS OF THE LATERAL SINUS.

By H. Secker Walker, F.R.C.S., Assistant Ophthalmic and Aural Surgeon to the General Infirmary at Leeds; Lecturer on Ophthalmology and Otology in the Yorkshire College, Victoria University.

[The following is from a paper read by Mr. Secker Walker before the Leeds and West Riding Medico-Chirurgical Society. The notes of the case are omitted.]

In a woman aged 24, the diagnosis of suppurative otitis media of long standing, with extension into the mastoid cells of each side, was made, and, in addition, and of most immediate importance, septic thrombosis of one lateral sinus, but beyond the fact of the falling in of the posterior wall of the right meatus there were no symptoms indicating on which side the disease was more serious or which sinus was thrombosed.

The patient was anæsthetised and the head shaved. The extent of the swelling on the left side was then seen more clearly. An incision was made through its lowest part over the

postero-inferior angle of the parietal bone, and pus and blood clot escaped. The floor of the cavity was composed of bare bone all over, yellowish-white in colour. The ordinary 2-inch curved incision, half an inch behind the attachment of the left auricle, was made straight down to the bone, and extended backwards in a curved direction to meet the first incision, and the flap was then turned upward. The bone over the mastoid region appeared healthy, no soft carious bone nor pus being present. The antrum was opened with chisel and mallet immediately behind the meatus in the suprameatal triangle described by Macewen, and found full of caseated material and pus. The bone removed by the chisel was densely hard, and the antrum lay deep, five-eighths of an inch from the surface. The cartilaginous meatus was cut through, the ear turned forwards, the posterior wall of the meatus chiselled away, the remains of the membrana tympani and the ossicles removed, and the middle ear and antrum cleaned out by washing and gentle scraping. The roof of the tympanum and antrum was dried and carefully inspected with the aid of the electric search-light, and examined by touch with a bent probe, but no perforation into the cranial cavity was detected. The whole cavity was then washed out with carbolic lotion, dried, and plugged with cyanide gauze. Next the bone was chiselled away posteriorly to lay bare and examine the condition of the lateral sinus. An area three-eighths of an inch in diameter was exposed and found covered with pus, the opening in the bone was extended, and a larger part of the sinus exposed, the vein opened with a scalpel, and a considerable quantity of pus and breaking down clot removed. There was no bleeding. A small Volkmann's spoon was then passed up the vein in the direction of its channel, and clot gently scraped away until a sudden gush of blood showed the way was clear. The bleeding was allowed to continue for a moment to wash away loose bits of clot, and then the sinus was plugged with Horsley's antiseptic wax, which immediately arrested the hemorrhage. Attention was then turned to the lower part of the sinus ; this was scraped out, well cleansed, and filled with wax. The rest of the wound and bony cavity was plugged with cyanide gauze, and the skin flap stitched in place.

The patient was turned over, the abscess behind the right mastoid opened ; it contained about 3 drachms of very offensive pus, and its floor was formed by bare bone. The bone over this mastoid process appeared like the other to be perfectly healthy, but on opening the antrum pus and granulation tissue were found filling the cavity. This was quickly cleaned out, the dressings applied, and the patient sent back to bed. She was much collapsed; ether and digitalis were injected subcutaneously, and brandy given by the rectum.

The next morning the patient was rather better, the temperature subnormal, the pulse 116. During the day she vomited once, but there was no return of the rigors. The following day, September 17, she volunteered the statement that she felt much better and had no pain, but asked that she might not have her left arm pricked. It was then found that there was distinct weakness in this arm and hand, but no numbness or loss of sensation. The movement and sensation in the legs were normal. No further vomiting nor rigors occurred.

On September 19 the patient complained of some pain in the head, the temperature rose to 101°, and she vomited. Two days later a swelling appeared at the back of the neck in the middle line; this was opened and a quantity of foul smelling pus was evacuated. The cavity led down to the external occipital protuberance, which was felt to be bare. After this the patient steadily improved, the optic neuritis almost disappeared, and on February 10, 1895, the vision had returned so that she could read J. 2. The hearing power, which had been nil in both ears, had returned on the right side, so that she could hear loud conversation; it had not altered on the left side. The convergent strabismus had almost gone, but the paresis in the left arm and hand remained.

One point of interest in the case was the presence of a superficial abscess on each side of the head considerably behind the mastoid region, and the independence of these abscesses on any immediately underlying bone disease. In fact, as stated above, not only the skin but the bone over each mastoid when laid bare appeared perfectly healthy. These abscesses evidently did not arise by direct extension of the disease in the antrum, through the bone, but probably in the same manner as pyæmic abscesses elsewhere, and it is most likely that the abscess in the neck occurring after the operation arose in a similar way.—*British Medical Journal*, *April* 13, 1895, *p.* 807.

AFFECTIONS OF THE SKIN, &c.

82.—THE INTERNAL THERAPEUTICS OF PSORIASIS AND SOME OTHER DISEASES OF THE SKIN.

By Radcliffe Crocker, M.D., F.R.C.P., Physician to the Skin Department, University College Hospital.

In a paper read before the Dermatological Society of Great Britain and Ireland, Dr. Crocker said that he felt that the progress made in the internal treatment of diseases of the skin

had not advanced in the same way as had the external methods, and he feared that the success of local applications had the effect of throwing internal therapeutics into the shade, and that there was a tendency to regard them as little better than relics of a bygone age. However, the introduction of tuberculin and of thyroidin had revived the interest in internal remedies. While admitting that the general health should be treated in all cases of skin disease, whether this appeared to have any bearing on the disease or not, he pointed out that we were so ignorant of the etiology and pathology of so many diseases that we cannot rely on any further lines of internal treatment with reasonable prospect of success. Since psoriasis is a disease which usually occurs in healthy people, and there is no definite indication for internal treatment, the practitioner is likely to resort to empirical remedies, whether he understands their *modus operandi* or not. It was such refuges of "ignorance" that he wished specially to discuss.

Passing by minor claimants, such as antimony, turpentine, and iodide of potassium, he devoted himself to an old friend, arsenic; to a new friend, thyroid extract; and lastly, to a class of drugs which, though old acquaintances, he wished to introduce in their new capacity, namely, the treatment of psoriasis.

While referring to the utility of arsenic in those cases where sufficient doses could be borne, and especially in the treatment of patches rebellious to local applications, he felt sure that, were the choice between arsenic and local remedies given to those who had much experience of psoriasis, they would unhesitatingly choose local remedies. He further stated that, although amongst the mass of the profession arsenic was given in every case of psoriasis or other chronic skin disease, there were undoubtedly cases in which it was not only useless but injurious: thus, in cases where the eruption develops acutely its use is very likely to produce extension of the disease, and in extremely hyperæmic cases its use appears to increase the irritation and burning of the affected parts. Finally, as a prophylactic it fails entirely, since fresh patches arise while the patient is fully under the influence of the drug. In the ordinary run of cases, however, and in the absence of gastro-intestinal disturbance, its use was generally of service, but its action was very slow, and without local treatment cases would drag on for months; for chronic cases, also, it was useful in removing the last fragments. With regard to thyroid extract, Dr. Crocker stated that after a more continued trial, his experience tended to narrow the sphere of its usefulness, although he admitted its utility in a limited number of cases. He considered that the drug was unsuitable for elderly patients with weak hearts, on account of its depressing effects, and of the profound illness which was produced if

the drug was not promptly stopped. He considered that it was also unsuitable in cases which were developing rapidly, or in which the hyperæmia was great.

In cases, however, which were not rapidly extending, or intensely inflammatory, and where the patient was organically sound, he considered that one might hope for success, but that thyroid treatment would only be an experiment, and a small dose should be given at first—not more than two five-grain tabloids a day, which dose might be increased to three or rarely four a day, but never more unless the patient was in bed and under observation. In some cases, which he had considered suitable, he had been disappointed. In his experience thyroid extract did not give more permanent results than other treatment; thus, he had seen a lady who was suffering from a recurrent attack of psoriasis five months after treatment with thyroid extract by Dr. Bramwell. In this case thyroid extract not only failed to relieve the patient but made the eruption come out more abundantly.

With regard to the last group of remedies, he was not aware that they had ever been regarded as having any influence on psoriasis or other skin diseases, and suggested that possibly many other drugs might be found to be valuable for the internal treatment of skin diseases, hitherto regarded as not amenable to drug administration. He wished to call attention to the use of salicin, salicylates, their allies and their derivatives. The first case in which he gave salicylates was that of a man aged 32 years, in whom psoriasis had only existed for a month, and was first noticed two weeks after a quinsy, the tonsils being still swollen. The well-known association of tonsillitis and rheumatism induced him to give the patient salicylate of soda in fifteen-grain doses three times a day without any external treatment. After a week's treatment the patches became paler, and most of the scales had fallen off; within six weeks all was clear.

He also cited a case of psoriasis guttata, which he had also treated with salicylates, and in which the eruption had almost completely disappeared without local treatment. In several other cases the result had been striking and conclusive, and most markedly so, in extensive spreading cases of psoriasis guttata of recent development (the very forms of the disease usually unsuited both for thyroid extract and arsenic). The results were not so brilliant when the disease was limited to a few chronic patches. When possible no local treatment was given at the same time, but often patients objected if they did not have any ointment given them to rub in, and so in some cases it was impossible to judge what share the salicylates had taken in curing the disease. The first effect of the drug appears

to be a diminution of hyperæmia, so that the patches become paler and the scales are formed less abundantly. In only one case did the salicylate aggravate the disease, and this only occurred after increasing the dose to 25 grains ; gastro-intestinal irritation, together with increase of the rash, followed, but on subsidence of the gastric trouble salicylates were continued, and were followed by improvement.

With regard to the drawbacks of the drug, he had found that a few patients were unable to continue salicylates, as it caused dyspepsia, although it was always given after meals, so as to obviate any gastro-intestinal irritation as far as possible. In one case it produced nausea and occasional vomiting, but its use was not stopped ; the substitution of potassium salicylate for the sodium salt caused worse nausea, but the patient was able to take salicin without discomfort, and the rash improved. He suggested that in such cases the pure natural salicin might be more easily tolerated.

Dr. Crocker has also given salicylate of soda, with considerable benefit in cases of erythema multiforme (including erythema iris), but as these diseases often naturally run a short course, it was difficult to have conclusive proof that the course of the malady was shortened by the drug, and was not due to spontaneous involution. In erythema nodosum, also, its use was strongly indicated.

In one case of lupus erythematosus, striking improvement followed the use of salicylates, although previous treatment by thyroid extract has been of no benefit : still Dr. Crocker had found that other cases of lupus erythematosus had been benefited by both thyroid extract and arsenic, but he thought the use of salicylate was less likely to upset the patient than either of its two rivals. He had not been able to prove any benefit to arise from its use in cases of eczema. Finally, he mentioned that Arning claimed to have had good results in some cases of leprosy from salicylates, and Dr. Crocker would feel inclined to employ them, in the place of quinine, in a case with febrile exacerbations.—*British Journal of Dermatology, July*, 1895, *p.* 227.

83.—NOTES ON A CASE OF PSORIASIS PALMARIS TREATED BY PALATINOIDS OF THYROID GLAND TISSUE.

By Charles Forbes, M.D., Late Surgeon, W.G.M., West Africa.

August 30, 1894.—C. A., a strong, healthy-looking lady, aged 36, about 5 ft. 3 in. in height, weight 15 st. 6 lbs., consulted

me regarding an eruption in the palm of left hand, which she said had existed for about 14 days : complained of constipation ; the cutaneous eruption was dry, harsh, and scaly (strongly typical of psoriasis) ; also remarked that she had never had any other form of skin disease.

Previous History.—During childhood had been attacked with "acute rheumatism," and her early life had been sickly, but on growing up appeared to be quite healthy, had worked hard, &c. Had first noticed a hard, dry, scaly appearance in left palm in November, 1893, but it had died away slowly (three months) on applying various ointments ; also noticed since November in that year her hair had been coming out.

August 31.—Pulse 72, temp. 98·6 deg. F. Put her on thyroid extract, ℥ v, three times a day.

September 3.—Pulse 84, temp. 99 deg. F., complained of nausea and slight indisposition, eruption more marked. She declared the medicine was most disgusting. *September* 4.—I gave her one "palatinoid" of thyroid gland powder (equalling one-sixteenth of a fresh gland) three times a day. *September* 7.—Found her much better (she had taken nine doses) slight thyroidism had set in, temp. 100 deg. F., pulse 92, more lively and active in her movements, no change in eruption except that it seemed redder. Thirsty, amount of urine passed during the day increased. *September* 10.—Pulse 84, temp. 99·2 deg. F., still very thirsty, perspiring freely, bowels opened every day since the 7th, says she is passing about twice as much urine as usual, feels very bright and well. Scales in left palm beginning to desquamate. Hair does not come out so freely as before "palatinoids" were administered, face looks slightly thinner, weight 15 st. 5 lbs. *September* 17.—Pulse 80, temp. 99 deg. Has not complained of nausea, tongue not coated, no headache, still bright and active, bowels regular every day, appetite good, face thinner, urine still abnormal in quantity daily, hair does not come out at all, still perspiring freely and drinks freely. Weight 15 st. 3 lbs. 3 oz. *September* 17 (continued).—Psoriatic scales have totally disappeared, leaving crimson patches. She is now taking four palatinoids per diem. *September* 24.—Pulse 76, temperature 98·6 deg. F., not perspiring so freely, bowels regular, tongue clean, general health good, eats well, sleeps well, face markedly thin, panniculus adiposus diminished, downy hair growing on both forearms, which had been previously quite devoid of hair, weight 15 st. 1 lb. No sign or trace of eruption in left palm, skin normal. Thyroid treatment was now abandoned.

November 10.—Pulse and temperature normal, health good.

February 3, 1895.—Again saw this patient ; face a little fuller, feels quite well, and speaks highly of the medicine, weight 15st. 2 lbs., no recurrence of palmar eruption.

Remarks.—I was led to adopt the thyroid treatment in this instance by the success attained with this drug by Dr. B. Bramwell in a case published in the *British Medical Journal*, March 24, 1894. Psoriasis of the palm in one hand only is known to be a most obstinate and intractable form of this disease, which is as a rule but little affected by local or general treatment (unless specific), which I am of opinion should be excluded in the present case. It might, I think, be rightly ascribed to excess of uric acid in the blood, as the patient's history denotes, for she was often subject to slight urticaria, probably toxæmic in origin. The form of drug chosen needs no apology, the result speaks for itself, it was easily swallowed and caused but little general disturbance of digestive processes, and absolutely no cardiac weakness, nothing beyond a rise in temperature and pulse rate. During this period the patient did not, as is recommended by Dr. Bramwell, assume the recumbent position.—*Medical Press and Circular*, *July* 24, 1895, *p.* 80.

84.—OVER-TREATMENT IN ECZEMA.

By Malcolm Morris, F.R.C.S.Ed., Surgeon to the Skin Department, St. Mary's Hospital, London.

There is no general formula for the treatment of eczema, and, to use a famous phrase, no one—not even the youngest among us—is infallible in his methods of dealing with it. Here, however, as in the case of other diseases, he will be most successful who tries to see things as they really are, and not in the light of any preconceived theory. Of the clinical facts, eczema we probably know nearly all that is to be known; of the laws which govern the evolution of the process we know something; of the pathological force which sets it in motion we know little or nothing. But if little is known a great deal has been imagined, and the subject has been enveloped in an atmosphere of hypothesis which in practice too often darkens counsel. The notion is still somewhat widely prevalent that eczema is the expression of a definite constitutional "dyscrasia," or in the language of the old pathology (from which the professional mind has not even yet altogether shaken itself free) the outward and visible sign of an inward "peccant humour" of some kind. This superstition, for it is nothing else—leads to errors in the treatment of the disease in two opposite directions—on the one hand of doing too little; on the other of doing too much. Some, believing that the skin lesions act as

"issues," whereby the supposed mischievous principle is withdrawn from the system, leave them untreated in the fear that the healing of them might cause "morbid determinations" to internal organs—a fear for which, according to my experience, there is simply no foundation. Others direct all their therapeutic efforts to forcing on what they call a "crisis," their plan of campaign apparently being to drive the enemy into the open country, where he can (in theory) be crushed without difficulty. It is, naturally enough, at hydropathic institutions that this method is most in favour, for there "critical eruptions" are among the usual incidents of the treatment, and therefore easily come to be looked upon as being an essential element in the cure. There is something seductive in the notion of bringing the disease to the surface, and there dealing with it in a summary fashion, but unfortunately the plan does not answer in practice. It is much easier to fan the flame of eczema than to subdue it. The "critical eruption" is very apt to forget that it is merely a strategical manœuvre, and to behave exactly as if it were a natural exacerbation of the disease ; like a foreign power called in as an ally it sometimes remains as a conqueror, more oppressive and more difficult to get rid of than the original enemy.

I have seen so many cases of eczema made worse by misdirected therapeutic energy that I think it my duty, for the credit of the profession as well as in the interests of patients, to say a few words of warning on the subject. The importance of avoiding this error has quite recently been impressed on my mind by the following case, which I relate as a typical example of the evils of over-treatment in eczema.

(The author then relates the case. It is certainly much to be hoped that such over-treatment as adopted in this case is not at all generally in use.)

There is nothing remarkable about the case here recorded, but it serves to point a moral. A localised eczema had been aggravated by over-treatment till it was on the way to become general ; the bread poultice intensified the inflammatory process and the bandages acted as vehicles for the conveyance of inoculable material to the parts to which they were applied. The dietetic restrictions helped to lower the patient's strength without having any beneficial effect on the disease. The plan of treatment, in fact, was founded on an erroneous notion as to the nature of the disease. It cannot be too strongly insisted upon that though some constitutional disorder, such as gout or diabetes is sometimes associated with eczema, and may indirectly react on the skin affection by its effect on the patient's health, eczema in itself is essentially a local catarrh, and as such should be treated by local remedies.

Too much zeal in the use of strong remedies which cause irritation is more disastrous than the do-nothing policy of those who look upon eczema as a useful derivative. My own method of treating the disease has been fully described elsewhere, it need only be stated here that I trust mainly to local applications of antiparasitic substances, feeling my way with the greatest caution so as to destroy the agents which are causing the mischief without setting up additional inflammation. Constitutional treatment is employed only when there is a definite indication that it is required.—*British Medical Journal, July* 27, 1895, *p.* 195.

85.—A CASE OF SCLEREMA NEONATORUM ENDING IN RECOVERY.

By Archibald E. Garrod, M.D.Oxon., F.R.C.P.Lond., Assistant Physician to the Hospital for Sick Children, Great Ormond-Street, and to the West London Hospital.

[The following is taken from Dr. Garrod's paper. He first gives the details of the case, which occurred in a male infant aged five weeks. These, owing to space, have been omitted.]

From the typical cases of sclerema neonatorum, upon which the descriptions contained in the text-books are mainly based, this case presents certain well-marked differences, which, after all, are differences of degree rather than of kind, and which may be briefly summed up as follows :—(1) the child, instead of being weakly at birth, was, with the exception of the local condition in excellent health ; nor had he suffered at any period of his brief existence from any pulmonary or intestinal disorder. (2) the temperature as taken in the rectum was at no time exceptionally low, whereas in severe cases the depression of temperature is one of the most conspicuous phenomena of the disease. The rectal temperature of 98·2° in the earlier stages probably indicated some depression, for it is stated that in young infants the temperature is as a rule over 99°, and on later dates the temperature was always somewhat higher in this case. (3) The induration after spreading in the earliest weeks of life became arrested, and instead of succumbing to the disease the patient made a steady and complete recovery. Now the only recognised condition with which sclerema is liable to be confused is the œdema sometimes observed in newly-born infants. There is no doubt that these two phenomena have frequently been confused together, and such confusion permeated the earlier literature of the subject until Parrot clearly differentiated

between them, pointing out that Andry and other French authors had applied Underwood's name of sclerema to a quite different condition from that which he intended it to designate. Those who are interested in this question will find the differences between sclerema and œdema neonatorum clearly set out in Henoch's work on the diseases of children, and in a paper by Dr. Ballantyne. In their general condition infants which are the subjects of sclerema and of œdema are apt to resemble each other somewhat closely, but the integuments of œdematous infants usually pit on pressure, although when there is great tension of fluid this character may be to a great extent wanting. Again, whereas sclerema tends to commence upon the dorsal aspect of the body and legs, and thence to spread to the remainder of the surface, œdema is apt to appear in the hands and feet and early involves the abdominal walls and scrotum or labia. I do not think that the case which I have described was one of œdema, for the following reasons:—(1) there was no evidence of syphilitic taint in the child, and the history of a miscarriage preceding the pregnancy hardly suffices as evidence of this disease; nor was there any evidence of erysipelatous inflammation, of visceral lesions, nor, indeed, of any recognised cause of œdema. (2) The distribution of the hardness and the manner in which it cleared up, leaving isolated patches which persisted for a long time, seems to me strongly opposed to the diagnosis of œdema. (3) The absence of pitting on pressure even in parts in which the induration was disappearing, and the tension could no longer be excessive, seems incompatible with such a diagnosis. I should, however, mention that when the patient was shown at the Dermatological Society in November, 1894, some of those present expressed the opinion that the condition was rather of the nature of œdema than of sclerema. If I am in error in describing the case as one of sclerema I have erred in good company, for among the published cases of that disease I have found several recorded by eminent observers which were obviously of the same nature as that under consideration.

We are not without knowledge of the changes present in fatal cases of sclerema. Some writers have described a deposit of stearin-like material in the subcutaneous tissue, suggesting that the fat there present has become solidified, and accordingly the name of fat sclerema has been employed. The theory of fat solidification received support from the observations of Langer, who states that in young infants nearly all the fat in the body is concentrated into the panniculus adiposus, which is relatively nearly five times as thick as in adults. There are, however, records of careful post-mortem observations of the skin and subcutaneous tissue of infants dying from sclerema which are

not consistent with the above view, and which are equally difficult to reconcile with the clinical features and rapid recovery of such cases as have been quoted above. Thus Parrot found that the most conspicuous changes were atrophy of the skin and of the subcutaneous fat, and that in consequence of this latter change the fibrous trabeculæ of the subcutaneous tissues appeared abnormally numerous and distinct. Ballantyne describes very similar appearances to those observed by Parrot, but he holds that the fibrous tissue increase is real and not merely apparent, and regards the atrophy of the fat cells as secondary to this sclerosis. Langer regarded the fall of the body temperature as the primary phenomenon and the solidification of the fat as the result of the cooling, but he suggests that in cases in which there is no conspicuous fall of temperature a similar result may be brought about by undue surface exposure to cold air or water. He quotes the observations of Sommer, who found that the natural temperature of new-born infants is somewhat higher than that of adults—viz., between 99·8° and 100° F. In cases in which there is a rise instead of the usual fall of temperature Langer ascribes the solidification of the fat to the oxidation and resorption of olein and a resulting elevation of the melting point. There is, however, another way in which we may look upon the relation of the lowered temperature to the sclerema. A conspicuous fall of temperature and early death are the phenomena observed in animals which have been varnished, and it seems at least possible that when the sclerema is universal or very extensive this affection interferes with the cutaneous functions, or more probably with the vaso-motor mechanism, in much the same way as varnishing does.

It is true that Senator found, in the course of some experiments undertaken with a view to the reduction of fever by this means, that very extensive varnishing of the skin in human beings did not produce the effects which are observed when animals are similarly treated ; but he attributes this to the fact that small animals have a greater surface in proportion to their bulk, and himself points out that children more closely resemble animals in this respect, and are much more sensitive to surface cooling, and that therefore they would be more likely than adults to exhibit a conspicuous fall of temperature under such treatment. On such a hypothesis it is easy to explain the absence of conspicuous lowering of temperature in the cases in which the sclerema is limited to the dorsal aspect of the body.

Since there is a tendency for the sclerema when once arrested to recede somewhat rapidly it seems possible that, provided adequate nourishment could be administered and if the warmth of the body were sufficiently maintained by placing the infant

in an incubator, the time of most danger might be tided over, and recovery might result in some at least of the graver cases of sclerema neonatorum. All writers agree that external warmth is clearly indicated in such cases, and it sometimes has appeared to have very beneficial results.

In conclusion, a few words must be said about treatment by drugs. I have already mentioned that Dr. Angel Money attributed much efficacy to the inunction of mercurial ointment in his case, for when this treatment was commenced the induration, which had up to then been extending, began to recede. When, however, we turn to Dr. Barlow's case we find that a similar arrest and recovery were observed although no mercurial treatment was employed; and in my case the improvement had certainly commenced during the week which preceded the inunction of mercurial ointment. After the mercurial inunction was stopped the improvement continued uninterruptedly, but it is my impression that it was not quite so rapid as during the four weeks of mercurial treatment.—*The Lancet, May* 4, 1895, *p.* 1103.

86.—THE DIFFICULTIES OF THE TREATMENT OF TINEA TONSURANS.

Notes on an article by M. Henri A. Martin.

(1) The author examines the various methods of treatment of tinea, and concludes "that there does not exist at the present time a satisfactory treatment for tinea tonsurans." (2) He gives a summary of Sabouraud's recent work, and accepts all his conclusions. From the doctrine of plurality of species it follows that such treatment cannot be specific, for there are many varieties of tondants, each of which requires a special therapeusis. (3) Since cases will ultimately recover spontaneously, it is not justifiable to employ methods which cause destruction of the hair-follicles, and which lead to the formation of a hairless cicatrix. (4) Unfortunately, of the methods at present known, those which spare the follicle are unable to attack the parasite on account of the deep implantation of the hair and the narrowness of the mouth of the follicle. (5) The difficulty in diagnosis, especially of early cases, is pointed out. In the earliest stages the hair does not appear to be altered. The lesions may easily be confounded with seborrhœa, psoriasis, impetigo, &c. In suspected cases he advises that the head should be painted with tincture of iodine, for this not only enables one to confirm the diagnosis, but brings into prominence the earlier lesions, destroys them, and acts as a prophylactic to

the further spread of the disease. (6) It is even more difficult to decide when a case is cured. A cure can only be declared when two careful examinations, at an interval of one month at least, do not reveal any parasite; even then one may be deceived. (7) The difficulties of treatment and the extreme contagion demand energetic prophylactic measures. The management of epidemics in schools is thoroughly discussed, and the establishment of state hospitals for isolation is strongly advocated. It is not sufficient, however, to isolate tinea cases; the different varieties should be kept apart. (8) In all cases the preliminary measures recommended by most authors should be carried out, viz., the head shaved, washed daily with soap and warm water, and kept covered by a bonnet or cap. In all cases the head should be painted with iodine for the reasons given above.

(1) *Large-spored varieties of animal origin.*—The tendency of these forms is to cure themselves by a process of inflammatory diminution, complete alopecia not resulting unless the inflammation be very intense. The primary indication for treatment is therefore to control the irritation by meal poultices, which have also the advantage of removing crusts, &c. Where there is little or no folliculitis it is necessary to provoke slight irritation. This may be done by the application of an iodine ointment (3 to 20 in 100). The duration of these cases is from two to four months.

(2) *Large-spored varieties of human origin.*—Treatment by irritants seems to be the best at the present time. The fungus in this form is almost exclusively confined to the hair, and epilation is recommended, together with the application of tincture of iodine and Vigo's plaster. Though complete epilation is difficult, yet one obtains a bald patch, allowing easier application of the plaster, and perhaps also the entrance of the iodine into the follicle is facilitated. The results of this method are to cause (1) a vesicular inflammation; (2) or a deeply-seated exudation. These remedies act probably by producing a secondary pus infection antagonistic to the growth of the fungus. In cases of fragile mycelium, where the hairs often do not pierce the integument, rendering epilation impossible, it is well to remove the superficial epidermis by means of shaving, scraping, iodine applications, or collodions. In those cases where there are no large plaques, but small groups of diseased hairs scattered over the whole scalp, gauze dressings appear useful. A thick cap of iodized wool can be applied to the head and covered with oilskin.

(3) *Small-spored variety.*—Here there exists the same difficulty in epilation, and the same impossibility of reaching the bottom of the follicle. According to Sabouraud, the staphylococcus has no deterrent effect on the growth of the microsporon, and does

not cause deep inflammation of the scalp. Martin entirely agrees with Sabouraud, and says, "we must, therefore, look for other treatment than that of irritative medicaments." The best results have been obtained by the alternate application of tincture of iodine and a pomade of carbonate of potassium. The pomade facilitates the epilation of the hair, so that at the end of three weeks or so, by using great gentleness and care, the hairs can be epilated almost or quite entire, and thus facilitating the penetration of the iodine into the follicle. The duration of this type under such treatment is not definitely stated.

(4) *Treatment of the last stage of tinea tonsurans.*—In all cases, after arriving at a certain stage of cure, there remain isolated spots of a few hairs which may resist all treatment. It is justifiable then to destroy these hairs by needling or electrocautery. (*Thèse de Paris*, Steinheil, Paris, 1894).—Mr. H. G. Adamson in the *British Journal of Dermatology*, *June*, 1895.

Obstetrics and Gynæcology.

87.—ON THE MANAGEMENT OF THE PREGNANT, PARTURIENT, AND LYING-IN WOMAN SUFFERING FROM CARDIAC DISEASE.

By John Phillips, M.A., M.D. (Cantab.), F.R.C.P.,
Assistant Obstetric Physician, King's College Hospital;
Physician, British Lying-in Hospital;
Examiner in Obstetric Medicine, University of Cambridge.

[The following is taken from Dr. Phillips' paper. The illustrative cases have been omitted.]

The pregnant woman may be the subject of several forms of cardiac lesion. They are: (1) Adhesions from former pericarditis, among which would be included those in which the heart has been displaced by pleural adhesions; (2) myocarditis and degeneration of the cardiac muscle; (3) endocarditis, chiefly affecting the valves (valvular heart disease); (4) acute endocarditis grafted upon the chronic form. It is important to bear in mind that valvular disease is not the only form of cardiac disorder which may give trouble; all the above-mentioned conditions may produce much distress and danger when complicating pregnancy, and it is frequently less often owing to a disturbed valvular mechanism than to a loss of reserve force of the heart that the so-called compensatory disturbances arise. If we consider that the condition of the blood of the pregnant woman, especially during the later months, is a defective one, it is quite evident that in a patient with heart disease there is a much greater risk of muscular degeneration. When compensation becomes insufficient during pregnancy certain phenomena occur in greater or less severity; these are varicosities of the legs and labia, œdema of the feet, legs, and vulva, or even general anasarca, palpitation and syncope, irritable cough, bronchitis with dyspnœa and cyanosis, hæmoptysis, albuminuria, and, lastly, serous effusions into the peritoneal and pleural cavities.

Many women with marked but compensated valvular disease go through pregnancy and labour without any bad symptoms whatever arising, and the disease is discovered only by chance. If the histories of these cases be followed up it will be found that frequently, after the first full-timed labour, abortion or premature labour occurs again and again, and that each succeeding pregnancy is complicated by increasingly severe

compensatory disturbances. This is well shown by statistics, which clearly prove that fatal results are nearly twice as frequent in cardiopathic multiparæ as in primiparæ.

(1) If a patient, then, passes through her pregnancy without any bad symptom arising, treatment should be confined to the avoidance of over-fatigue, too much stair-work, and the regulation of the bowels. Compensatory disturbances may put in an appearance as early as the ninth week of pregnancy, though, as a rule, not until the fifth month. If the social position of the patient allow of it, she should be kept on one floor, and in the recumbent position. Among the poor this is obviously impossible, and accounts, probably, for the high percentage of mortality observed among them. This treatment much relieves the work of the heart and obviates subsequent abortion. Should albuminuria set in, it must be looked upon as a serious phenomenon, and only exceeded in gravity by the supervention of nephritis. As a rule, a mixture of liquor arsenicalis, ℥ v, and liquor ferri dialysati (Wyeth), ℥ x, or liquor strychniæ, ℥ v, thice daily, will counteract the anæmia and want of cardiac tone in these cases; and a stimulating mixture of ether and ammonia will be found necessary for the attacks of syncope. Should marked œdema or effusion set in with dyspnœa, the exhibition of digitalis in the form of the tincture or infusion will be indicated, more especially in cases where the lesion is valvular and of the mitral variety. Spiegelberg is adverse to the use of this drug in aortic disease, and, certainly, its effects in my experience have not been so marked as in disease of the mitral valve. Tincture of strophanthus (℥ iii—x) is in some cases an extremely valuable heart tonic, but its administration is not advisable in aortic stenosis. Exertion immediately after food should not be indulged in. Straining at stool must be avoided, and a gentle laxative of confection of senna, or sulphur lozenges, should be taken at bedtime, as circumstances require. If there is sleeplessness, bromide of potash or sulphonal may be given in moderate doses.

(2) During labour the patient will, as a rule, feel easier and less breathless if she assumes the sitting posture. In some cases severe dyspnœa may be present all through the labour, as is indicated by the gasping respiration, active alæ nasi, anxious facies, and blueness of the lips. During the first stage, subcutaneous injections of ether, or rectal injections of brandy, must be given at intervals according to the state of the patient. Should an excess of liquor amnii be present, and evidently interfering with respiration, it would be good practice to rupture the membranes even before complete dilatation of the cervix. Almost instant relief follows, but, unfortunately, it is

not permanent. Where urgent symptoms have arisen with incomplete cervical dilatation, incisions have been recommended, but the necessity for such a severe procedure must occur but rarely. In ordinary cases, immediately the os uteri is fully dilated, delivery should be effected artificially, the patient not being allowed to endure any bearing-down pains. An anæsthetic must be given, and if the pelvis is roomy, the forceps applied, as she lies, in the dorsal decubitus. Either lateral position produces rapidly increased distress in the breathing. The pain of applying the forceps without an anæsthetic results in much greater shock than with it; ether should be given for choice. If there is pelvic contraction, version and completion of delivery must be effected. As a rule, during the operation the pulse will quiet down, the respiration be easier, and the patient's condition temporarily improved.

Extraction of the fœtus should be performed slowly, and a 12-lb. sand-bag laid over the fundus uteri during the process, so that its pressure may counteract the rapidly descending abdominal pressure, and hence avoid the consequent collapse from cerebral anæmia, or right-heart insufficiency. The bag must not be looked upon as aiding uterine contraction.

(3) It is during the period following the birth of the fœtus that the maternal life is most endangered. Serious symptoms may commence at any time from fœtal delivery to the fourth day of the puerperium. It is, therefore, of the greatest importance to watch the patient most vigilantly during that period. Until quite recently the possibility of *post-partum* hemorrhage taking place was looked upon with the greatest apprehension, and all endeavours were made to obviate its occurrence, hot douches and large doses of ergot being strongly recommended. The more modern idea that the bad symptoms arising are due to over-distension of the right heart has been ably advocated by Berry Hart; he illustrates his paper by a frozen section of a patient's heart showing this condition, and he therefore strongly insists on the value of allowing free hemorrhage to take place. My experience is entirely in accord with the opinion he expresses, and I believe that *post-partum* hemorrhage should rather be encouraged than checked.

For this reason the administration of ergot seems strongly contra-indicated, as by producing contraction of the peripheral arterioles, it increases the resistance the heart has to overcome. Schlayer observed complete collapse in one of his cases almost immediately after a subcutaneous injection of ergotin. Fraser-Wright reports a case in which, immediately after the birth of the placenta, great dyspnœa, cough and hæmoptysis, with lividity of the face, came on. He gave the patient ℥ v of nitrite of amyl to inhale, with immediate relief; the breathing

became easier, the lividity gave place to a red flush, and recovery took place. He considered that this was explained, first, by the action of the drug on the uterus, allowing freer hemorrhage; and, secondly, by dilating the arterioles, permitted a greater quantity of blood accommodation in the peripheral circulatory system. I certainly think this drug worthy of a more extended trial. Venesection from either arm, theoretically a correct procedure, has not met with success in those cases in which it has been resorted to, and I cannot, therefore, recommend its adoption. At the same time, I found great relief given to the more distressing symptoms by the application of three leeches over the præcordia in one case.

In cases of cardiac disease complicating pregnancy the question may arise as to the advisability of inducing abortion or, in the later months, premature labour. In considering the treatment by artificial abortion, it is at once evident that if this course were generally recommended, it might be open to very serious abuse. Very few cases develop serious symptoms until later on in the pregnancy; and even Schrœder, who discusses the matter very carefully, comes to the very decided conclusion that cases in which such treatment is necessary must be extremely rare. Many obstetricians have never seen a case in which such a proceeding is indicated, and I am certainly most disinclined to sanction it.

With regard to induction of premature labour, we must consider that the condition of any patient in which it is thought a necessary operation is one of extreme gravity, and the mere fact of interrupting the pregnancy will not stay the cardiac degeneration which is going on. Although the patient may survive the labour, she will almost inevitably succumb during the early days of the puerperium. Schlayer reports three cases in which he performed it, all with fatal result—one *intra-partum*, the others on the eighth and fourteenth days *post-partum* respectively. Of 32 cases collected from various sources, I find that 22 terminated fatally during the puerperium, and 1 *intra-partum*.

We must consider, in addition, that the tissues of a woman with cardiac disease are more liable to invasion by septic germs than those of a healthy patient. There seem to be no precise indications by which we may define the limits of the operation. Marked cyanosis and hæmoptysis, with albuminuria and œdema of the extremities, have been considered as sufficient reasons for interference; but although relief may ensue, it is only of a temporary nature, and engorgement of the right heart rapidly recurs. I think, therefore, that the weight of evidence is decidedly against the resort to this method of procedure.—*The Practitioner*, *June*, 1895, *p.* 486.

88.—THE TREATMENT OF SEVERE HEMORRHAGE BY THE INFUSION OF NORMAL SALINE SOLUTION.

By John H. Glenn, M.D., Ex-Senior Assistant Master, Rotunda Hospital.

[The illustrative cases accompanying Dr. Glenn's paper have been omitted.]

It is my privilege, through the courtesy of Dr. Smyly, Master of the Rotunda Hospital, to bring before you some cases illustrating the treatment of severe hemorrhage by the infusion of normal saline solution. During my four years' residence I had the opportunity of seeing four out of the five methods usually employed, namely:—(1) Munchmeyer's intra-connective-tissue injection; (2) Ponfick's intra-peritoneal infusion; (3) rectal injection; (4) intra-venous infusion; (5) intra-arterial infusion—(*a*) centripetal, (*b*) centrifugal. The latter method I have not seen.

Munchmeyer's method is, I think, the least useful, but the massage, which is part of the technique, is most important, especially when applied to the abdominal walls, as the large reserve of blood held by the abdominal veins is thus encouraged to flow towards the heart. Intra-peritoneal infusion was employed in several laparotomies, leaving three or four pints of saline solution (1 drachm to 1 pint) in the peritoneal cavity with markedly good results. The patients suffered from exceedingly slight shock, considering their loss of blood, and rapidly recovered; great thirst was a noticeable feature, but the cases, taken as a whole, were so favourable that I certainly would employ it should I meet with similar indications, and this notwithstanding my firm adherence to the dry method.

We have not employed direct injection with the special curved syringe, as the danger of wounding the underlying intestine is too great, though the likelihood of peritonitis following has without doubt been exaggerated.

Rectal injection has its principal advantage in that it can be employed at the will of the operator any time during an operation. That absorption takes place even during profound narcosis may be inferred from our experience of ether administered per rectum. These methods, though useful, have in no degree the value of the two following, intra-venous and intra-arterial infusion, at least so far as the immediate treatment of profuse hemorrhage is concerned.

Theoretically, transfusion of blood is the best method; statistics have on the whole been favourable, for in a total of 243 cases 46·9 per cent. terminated in complete recovery, and

14 per cent. were followed by temporary benefit. Of course an accurate sifting of these is quite impracticable, as it would be impossible to estimate the probable duration of life supposing transfusion had not been employed. I merely quote these because of the prevalent opinion that transfusion of blood was a failure, whereas the very contrary was the case; but the difficulties attending its performance led to its general abandonment, except in hospitals. Whether infusion of arterial blood will prove better than the intra-venous infusion of normal saline solution must be left to the future. We know that blood excels saline fluid on nutritive grounds, but the dynamic effect of the operation being that generally required to restore suspended animation, saline fluid will usually be found sufficient. Of late years the advocates of normal saline solution go so far as to state that infusion of blood is absolutely harmful.

In the lectures delivered in the Royal College of Surgeons, England, in 1889, on "Transfusion," William Hunter deals at length, both from an experimental and physiological point of view, with the dangers of, and objections to, transfusion of blood, whether by the direct method or after defibrination, or after admixture with phosphate of sodium according to the method of Braxton Hicks. He sums up thus—"Any advantages that transfusion of red corpuscles may have over simple saline injections are counterbalanced by the dangers attending the simultaneous injection of the white. In the case of defibrinated lood, the latter so preponderate that transfusion of defibrinated blood is an operation not only dangerous in itself, but one whose practical value by no means serves to compensate the additional risks run in carrying it out." This method was first suggested in England by Sir Spencer Wells. Landerer and Bischoff in Germany; Jennings, Arbuthnot Lane, and Herbert Spencer in England were its pioneers.

Goltz first showed that death from hemorrhage lies in loss of fluid and incomplete filling of heart, not the loss of corpuscles or hæmoglobin, and that as long as the blood can be kept moving by injection of fluid life can be saved. For years this method has been well known to experimental pathologists and workers in physiology, and it has been a constant practice to thus resuscitate animals exhausted by loss of blood, but only since 1881 has it been successfully applied to man. I purposely exclude the well-known experiments on cholera patients in 1848.

Technique.—In the following cases I employed the transfusion apparatus made by Collin, of Paris, and found it admirable and easy to work. At the same time I feel the strong point of this method lies in the extreme simplicity of the whole proceeding, requiring no special complicated apparatus (which is probably

out of order when required), but merely one which can be extemporised in any house, however remote from instrument makers—a clean jug, a piece of india-rubber tubing, and a cannula (a watch-key will answer admirably) are all that one requires. The skin over the bend of the elbow having been carefully washed with hot water and soap, is disinfected with alcohol and corrosive sublimate, a turn of bandage is put on above the elbow to render the veins more prominent, an incision one inch or more in length is made along the course of the median-basilic or median-cephalic vein—preferably the former as it is usually larger, and though it lies over the brachial artery it is separated from it by the semi-lunar fascia of the biceps. The vein is dissected up for half an inch, and a double ligature passed beneath ; the loop is cut, and the lower or distal ligature tied. A single knot is now tied on the proximal ligature, and the apparatus being ready a transverse cut is made in the vein, the cannula inserted, and the upper ligature tightened upon it. The cannula should have a groove upon it to prevent slipping. After the infusion the cannula is withdrawn, the ligature tightened, a second knot applied, the vein cut between the two ligatures, and an aseptic pad put over the wound. It is a question of opinion whether it is advisable to ligate the vein or not ; in my cases we did so.

Several important questions now arise :—What should the rate of injection be? Panum gives three ounces per minute as the maximum to inject ; slowly and regularly is generally the most important matter in the operation. The dangers of neglecting this very important point are—over-filling of the heart, sanguineous œdema of the lungs, hemorrhagic exudations into the intestines, injections of the capillaries—especially of the intestinal mucous membrane, and more rarely those of the stomach—fever, shiverings. These complications are explained by the effect of the alternate weakening or paralysis of the heart, and its vigorous action after the infusions.

What should the temperature of the saline solution be? About 102·2° as it is put into the apparatus ; this allows for cooling down to blood-heat in passing through. As regards the quantity to be injected each individual case has its own requirements ; certainly we ought to go on until a slowing of the pulse with an increase of volume is noticeable. I shall only remind you that an increase of blood to the extent of four-fifths of the normal amount can be borne without injury to the individual into whom it is injected ; later writers favour large quantities. Horrocks used two to six pints, Herbert Spencer a pint and a half to two pints, Bernard Pitts two to eight or ten pints, while in our cases eight was the maximum. Alcohol added has no advantage.

Arterial infusion is in its infancy, but I believe will yet become a recognised operation in severe cases. That fatal cases have occurred during venous infusion is undoubtedly true, though to no serious extent. These Landois explains in the following manner:—"After a severe loss of blood the circulation is slowed, the difference in pressure between arteries and veins becomes smaller. In the highest degree of anæmia only tiny, slowly circulating streams of blood passing through its capillaries keep up the excitability of the medulla oblongata. If a larger quantity of blood is conducted in a short time through a vein, then there occurs first of all, along with increase of pressure, a statis of blood in the large venous trunks, and feebly acting right side of the heart. Thus, though it be but for a few seconds, a further interruption of the circulation may take place in the medulla oblongata, which, with the already extremely limited nutrition of this organ, may be enough to entirely stop its function." In these circumstances Landois recommends arterial, and especially centripetal arterial, infusion first advocated by Hueter. The radial artery is selected, the cannula directed towards the aorta; on infusing the valves close. The blood at the commencement of the aorta being thus placed under high pressure escapes into the side branches, and flows through the carotids and subclavians to the medulla oblongata, to which it brings immediate help. In order that blood may not press into the branches of the descending aorta in too great quantity both femorals should be compressed, and moderate pressure applied to the abdomen. This method has certain disadvantages—namely, enfeeblement of cardiac muscle, noticed by diminution of heart's activity during injection, and greater penetrability of the pulmonary vessels; but, on the other hand when arterial infusion is made from the aorta the capillaries act as a perfect filter, at the same time levelling the temperature. If too great a pressure is employed rupture of these delicate vessels ensues, with swelling of the hand and hemorrhage.

The loss of an artery is not worth speaking about, as only in grave cases is the operation justifiable. One other point is worthy of notice—in profoundly anæmic fat patients it is difficult to find a vein suitable—a case in point my friend and colleague, Dr. Tweedy, and myself met with. I now regret not having opened the radial artery.

I therefore sum up by thinking that one or other of these methods should be employed in cases of severe hemorrhage, which must be decided by the special case. I would especially sound a note of warning against being in a hurry to employ it in *post partum* hemorrhage; but in cases where bleeding points have been secured I believe we have a method which will save many lives in days to come.—*Dublin Journal of Medical Science, September*, 1895, *p.* 218.

89.—BRIEF NOTES OF A THOUSAND CASES IN OBSTETRIC PRACTICE, EXTENDING OVER A NUMBER OF YEARS.

By James Venables, M.D., Halifax, N.S.

Number of cases, 1,000. Number of abortions, 47 ; number of premature births, 36 ; number of births at maturity (males 484, females 383), 867 ; case of uterine hydatids, 1 ; case of tubal pregnancy, 1 ; cases moved away before confinement, or attended by others, 60 ; total, cases and births, 1,012.

There occurred in the above—Primipara 179, twin cases (maturity) 12, placenta previa 4, convulsions 3, forceps cases 41, still-born (maturity) 59, acephalous 1. Presentations—Face 3, breech 15, footling 6, left arm 1, right arm 1, natural 841 ; total, 867. Cases occurring in each month—January 81, February 67, March 79, April 68, May 93, June 85, July 87, August 79, September 79, October 68, November 60, December 89, not known 65 ; total, 1,000.

In the foregoing it will be observed that there were 41 cases in which forceps were used, in a total number of 867 cases ; in 10 of these cases the child was still-born ; in the other cases both mother and child did well, troublesome laceration of the perineum occurring in one case, requiring surgical attendance for some time. Churchill states that about one forceps case occurs in 249 among British practitioners, one in 140 among French, and one in 106 among German. "If we add the whole number together we find 8,007 forceps cases in 850,713 cases of labour, or about one in $106\frac{1}{3}$." It will be seen at once that the foregoing shows a greater number of forceps cases—one in 21—than either the British, French, or German statistics. The number of children born dead (forceps cases) is about one in five, says "Churchill's Midwifery."

Three cases of convulsions occurred during labour. One case terminated without the use of forceps ; both mother and child did well. In the other two cases forceps were used ; the mother did well in both cases, the child was still-born in one case.

In the four cases of placenta previa, three of the children were still-born ; in the other case both mother and child did well. In one case (the patient lived out of the city and I made her but one visit) there had been hemorrhage at intervals from January 1 till February 8, the date of my visit ; the patient died soon after delivery. In another case the mother did well (child still-born) ; and in the fourth case the mother did well (child still-born). Or, death of the mother in one case, and of the child in three cases, out of four.

It will also be observed that 15 breech cases occurred in a total of 867 cases, or about one in 57½. "Churchill's Midwifery" says—"Thus in British practice breech presentation occurred 1,363 times in 91,651 cases, or about one in 67⅓; in French practice, 1,169 times in 50,873 cases, or about one in 42¾; and in German practice, 793 times in 54,794 cases, or about one in 66½; the entire number of breech presentations being 3,325 in 197,318 cases, or about one in 59⅓.

The number of still-born was 59. There were also 14 premature still-born. In the 59 cases still-born two were breech presentations, two footling, one left arm; three of them were placenta previa cases. In 10 cases the forceps were used.

In one case of natural labour I used an ointment of cocaine, with lanoline and glycerine, applied to the os and vaginal cavity, without, as far as I could observe, any marked effect. Chloroform was requested by the patient, but the labour did not wait for it, and perhaps (?) the cocaine hastened matters so that there was no time to use the anæsthetic. In one case, still-born, there was degeneration of the umbilical cord, and the limbs of the child were quite rigid. Hare-lip occurred in one child, which died an hour after it was born. Opacity of the cornea (in one eye) was present in one child.

In the case of tubal pregnancy the patient was 29 years of age, and had borne other children. A post-mortem examination showed total ulceration of the bowels, and cavity filled with fæcal matter, from which the bones of the fœtus were removed. I regret that my notes of this case merely allow the mention of it.

In the acephalous case the following was published in the *Maritime Medical News*, Halifax, N.S., December, 1891, under the title "Note Concerning a Monstrosity—an Acephalous Fœtus":—"I was summoned to attend Mrs. —— in labour, in the summer of 1890. On my arrival she told me that there had been quite a quantity of water escaping, and the symptoms of labour had manifested themselves early in the morning. I at once made an examination *per vaginam*, and found that the membranes had been ruptured, and that the presentation was one of the inferior extremities. The pains increased. The left foot soon came down, and, at the same time, a portion of the umbilical cord, which was without pulsation. A few more pains brought down the right foot and the body of the child; and to my astonishment another pain expelled the entire fœtus. The uterus soon contracted firmly, and without any traction, the placenta came away in about ten minutes; the entire labour terminating in about five hours after my arrival. The placenta was normal, and there was no post-partum hemorrhage of a serious nature. The patient, a woman 41 years of age, made

a rapid recovery. She had previously had one premature birth and six abortions. She had also had six living children. Her health has always been good.

"The fœtus was a female—its body and lower limbs well-formed and plump. I did not weigh it, but am inclined to think it would weigh fully nine pounds, and be about twenty-four inches in length. There was nothing unusual about the appearance of the fœtus until you reached the upper part. Here the face had a depressed appearance, and the ears were not fully developed. The calvarium was entirely absent, and with the termination of the spinal column the development ceased. The skin covered a reddish pulpy mass, having a slight resemblance to brain. The frontal bone was rudimentary and thrown well back.

"Monstrosities are of two kinds—there may be either a deficiency or an excess of some portion of the body. It has been said that many other forms of monstrosities are explained upon the principle of retarded development, and that those parts which are the last completed present the greater number of deviations from the ordinary or natural rules. Among the ancients monstrosities were considered as mere experiments on the part of atoms to produce some other species or race."

In the case of uterine hydatids, an examination at once revealed a softened condition of the os and cervix, and on dilatation was followed by an escape of cysts. Subsequent use of ergot, and increased uterine action, with manual assistance, brought everything away. There was but little hemorrhage. A compress and bandage was applied, and under tonic treatment a good recovery soon ensued.

In very few of the foregoing cases have I used either chloroform, ether, or stimulants; and in those few but little has been required. After leaving the patient, I have trusted to the efforts of a good nurse—a woman with common-sense—to maintain peace and quietness in the sick-room, and to carry out any instructions she might receive, always endeavouring to help nature, whose teachings are often disregarded.—*Boston Medical and Surgical Journal, September* 19, 1895, *p.* 289.

90.—SURGICAL TREATMENT OF PUERPERAL SEPTICÆMIA.

[The following is an editorial taken from the *Medical News*, August 10, p. 158:]

The treatment of puerperal septicæmia has hitherto been palliative and expectant, both on account of the difficulty in localising the infective process in given cases and from the

elusive character of the symptoms. Although there are instances in which surgical treatment is demanded, we still have to deal with cases that are entirely beyond the reach of surgery. In the first class, either the point of origin of the infection or the area made continuous with it by means of the lymphatic circulation remains the seat of the developed process; in the second class the toxæmic element influences the aspect of the disease.

There are two sources of error to be guarded against in the management of cases of puerperal septicæmia amenable to surgical treatment—First the difficulty in determining the seat of infection—whether it be extra-peritoneal or intra-peritoneal, the chance of drainage outward in the first instance and the necessity of either partial or total extirpation of the pelvic organs in the second depending upon the accuracy with which we differentiate the seat of infection; second, the choice of time for operation—whether in the early absorptive period of the disease or in the developed stage. Pathologically, the form of infection in these cases depends upon the character of the infecting elements and upon the degree of local resistance. If we were able to establish the relation between the symptoms and the pathologic process in each case we should be enabled to differentiate between those cases amenable to surgical treatment and those beyond its aid. In this, however, the difficulty in treatment lies.

The disease in its development assumes one of three forms, considered anatomically:—First, a local infection, the result of necrotic endometritis extending by lymphatic involvement to the pelvic connective tissue. Second, a localised suppurative process terminating in either a phlegmon of the broad ligament or an ovarian abscess. Third, a general infection, expressed locally by a diffuse peritonitis, the result of active absorption by means of the lymphatics of infective material from the original seat of infection, and generally by the symptoms dependent upon pyæmia. Surgery is applicable probably only to the second division of cases, and if we exclude curettage from the radical surgical procedures the field is extremely limited. Total extirpation of the uterus is recommended in puerperal parametritis with suppurative lymphangitis of the uterine tissue, and the class of cases in which this association appears might be included in the first division. In the last division of cases surgical treatment is inevitably fruitless.

Practically, the landmarks by which we are to choose our way are misleading. This is best illustrated by the character of the symptoms in acute septic toxemia (sapremia). In this form of the disease the physical signs, as well as the symptoms, may, on the one hand, point to a parametritis with uterine involvement,

or on the other, to a localised suppurative process, whereas the local process may be entirely subordinate to the general expression of the disease, so indistinctly do the diagnostic points present themselves. Every practical obstetrician must have encountered cases in which the signs of a local infectious process have been present, namely, local infiltration, intestinal paralysis, and fœtid lochia, perhaps together with the pain of peritonitis and the irregular temperature of suppuration, and yet post-mortem not a single local indication is to be found that would have warranted surgical interference.

In view of these facts it seems fitting to enter a plea for the closer study of diagnosis in connection with puerperal septicæmia. Skill in diagnosis will depend largely upon two factors—always excluding the essential ability for painstaking observation, characteristic of the scientifically qualified practitioner—first, upon the amount of practical experience to be counted among the resources of the diagnostician, and, secondly, the degree of general and special training he has received in the observation of symptoms. As a rule, the men who are best able to operate are those who unfortunately are least able to separate mentally the operative from the non-operative cases, because they have usually met with only the former. May not our reliance, therefore, upon surgery yield in some degree to an appreciation of the art of diagnosis, whether diagnostic acumen be the criterion of either obstetric or surgical skill?

91.—ON THE COMMON FORM OF WHITE LEG AFTER CONFINEMENT.

By C. Hubert Roberts, F.R.C.S., M.B.Lond., M.R.C.P.,
Tutor of Practical Midwifery at St. Bartholomew's Hospital;
Physician to Out-Patients, Samaritan Hospital, London.

[We regret that owing to space it is impossible to reproduce Dr. Roberts' valuable paper in full. We must content ourselves with giving (*a*) his classification of white leg, (*b*) some of the points exhibited by the analysis of his 16 cases, (*c*) the treatment recommended, and (*d*) the summary and conclusions.]

Under such a term as white leg we are not talking of a single condition, but since there may be various forms of this disease, and it is not confined to women but affects men also, and is not necessarily confined to the pregnant condition, I propose the following classification:—(*a*) Cases depending upon pressure on some part of the venous system; (*b*) cases occurring in

connection with certain general diseases—phthisis, cancer, cholera, the fevers in general, typhoid, typhus, &c.; (*c*) cases occurring with general septic conditions—dysentery, pyæmia, poisons such as snake-bite, intestinal and rectal ulceration, bone disease, portal pyæmia, and the so-called puerperal fevers; (*d*) those associated with thrombosis apart from sepsis, but due to loss of blood; (*e*) those of sepsis and thrombosis combined—"the true phlegmasia."

The above cases exhibit a few of the points I wish to bring before you in this paper. Chiefly these:—(*a*) Multiparity is common. (*b*) White leg is often associated with previous loss of blood or difficult labour. (*c*) The average day of onset is about the tenth to fourteenth day in simple cases, and earlier in those with evident signs of sepsis. (*d*) The left leg is more commonly affected than the right. (*e*) Cases of double white leg do occur, though not commonly, and they invariably succeed one another in their onset, and do not occur simultaneously. (*f*) Œdema is the rule in the common variety, pitting being marked all the time; the leg is rather dusky than white. (*g*) Pain and tenderness generally occur, and "painful spots" in certain definite situations are generally to be observed. (*h*) Pyrexia lasting fourteen to twenty-eight days is the rule, accompanying the thrombosis; rigors mark the onset in some cases. (*i*) Evident pelvic signs of sepsis, such as peri- or pari-metritis are not common, and in such cases the pyrexia is marked from the first. (*j*) Pulmonary embolism is uncommon, but may occur at any time, even very late. (*k*) Such legs are rarely brawny and white, but rather livid, and pit easily, and differ in this respect from true phlegmasia. (*l*) Most patients recover—in fact, it is the rule; but the recovery of the leg or legs is not so hopeful, and protracted convalescence occurs.

Treatment.—The most essential element in the treatment of these cases is absolute rest in bed for a considerable period, and rather let the time be too long than too short. No case should be allowed to get up under six weeks, often longer, and should the other leg be similarly affected I would insist upon another period of six weeks' rest. All needless manipulation of the leg and repeated examination of the thrombosed veins should be refrained from, remembering the dangers of embolism, and one should not be too anxious to begin systematic friction or massage too early. In the early stages of the disease the limb should be kept at absolute rest, a little elevated and a little flexed upon a pillow, and guarded from all pressure by a cradle—generally a pillow lengthwise under the limb, folded around it on either side will do. Warmth is good, and the leg should be wrapped loosely in wool, which is so arranged that it can be removed or changed without disturbing the limb in any way.

For the pain I have found belladonna fomentations the best locally ; they relieve pain and are nicer and cleaner than the older remedy of belladonna and glycerine. If necessary hypnotics may be given, chloral or bromide or both, or morphine, or some form of opium. I prefer the latter drug. For the pyrexia, unless it be severe, little need be done. Generally cradling or sponging is good, if necessary quinine, or an ice-cap to the head. I do not like antipyrin and its allies. As regards food it should rather be pushed in these cases if the patient can take it. Strong soups and essences, even fish and meat and red wines, stout or stimulants, as in most cases I have found that patients are already debilitated by severe labour and often severe hemorrhage at the time of delivery or before. In a really septic case one has a worse condition to deal with, and you can only hope to support the strength of your patient, and treat the local complications as they arise.

Later on, when the patient gets up a bandage is good ; generally a nice even roller of domett is best. It gives firm, nice, elastic support, and I find patients prefer this to elastic stockings or Martin's bandage. Great care must be exercised to get the pressure quite even from below upwards, and the skin must be carefully watched as its vitality is low, especially over the shin, and if once a sore forms it is most troublesome to heal. A month or six weeks after the patient has got up, gentle friction upwards with the dry hand is good, avoiding the regions of the thrombosed veins, and later on scientific massage and shampooing. It is a good thing to take careful measurements of both legs as soon as the case is admitted, as the other leg may be affected later, and if you have no initial guide of measurements you cannot compare the legs later on or watch the increase or decrease of the œdema.

Summary and conclusions.—I would sum up with the following conclusions. The term white leg is somewhat misleading ; under this term may be included several forms of the disease, some of which are very rare and some common enough in their occurrence. The distinction is perhaps not very important, but I think that the ordinary description given in books as the common form, viz. the "brawny, white, hard, painful leg, the real phlegmasia" is *not* of common occurrence, but rather the form of disease in which the leg is dusky and œdematous, and in which as far as can be ascertained thrombosis is the chief factor, and which I maintain to be the common variety which follows childbirth.

I would classify the cases into the groups previously mentioned, namely those due to pressure, disease, sepsis, and the lymphatic and venous forms ; and of these, those due to mere pressure or coming on in the course of some definite disease, or those

evidently from the first septic, I do not deal with, but compare rather the so-called lymphatic with the thrombotic legs, taking the lymphatic leg in a wide sense to mean the true phlegmasia of which the pathology is so obscure, and which I suggest is an acute cellulitis unlike any other disease, and due to septic micro-organisms, which is of very rare occurrence. The thrombotic form (of which the cases quoted mostly consist) I consider to be *the* common form, and in such cases the thrombosis which occurs can be ascribed rather to a blood change due to the increased tendency to coagulation in pregnancy, but in a greater measure to large blood loss either before or after delivery, placenta prævia, or post-partum hemorrhage ; such coagulation starts primarily in the uterine or pelvic veins, gradually spreading to the femoral, and this condition in the pelvis gives rise to no evident symptoms or signs that can be diagnosed ; in ordinary labour it does not occur, but in those cases previously impoverished by loss of blood such coagulation is more probable, while, if the other leg be affected, it is due to the extension of the clot, either from the other side or even across the junction of the common iliac veins and vena cava inferior.

The late onset of the symptoms in the puerperium is to be accounted for by the slow extension of the clot from the uterus outwards. The onset is generally from the tenth to the twentieth day.

The pyrexia which accompanies the thrombosis is the rule in these cases, and may last for a week or even more, but does not necessarily indicate a septic condition, though there are forms of thrombosis which are often combined with lymphatic obstruction, and in which sepsis is evident both from constitutional symptoms and pelvic conditions which can be easily made out.

Now the condition which I have attempted to describe is the commoner form of thrombotic leg, and not the rare cases of so-called true phlegmasia. In these thrombotic cases the leg is dusky and œdematous, with marked pitting, invariably painful, and with evident thrombosed veins and tender spots ; both legs may be affected, but always one after the other.

The onset is late in the puerperium—tenth to twentieth day, —and is accompanied by pyrexia ; multiparity is the rule. Such cases run a definite course of about six to eight weeks before the swelling subsides. Complications are uncommon, but pulmonary embolism is the great danger, and this is very rarely seen. The prognosis to life is good, few cases are fatal ; but to the leg such good results cannot always be hoped for, the majority get well, but many remain permanently damaged. As regards treatment, absolute rest for a prolonged period is necessary, with a general tonic treatment, since probably

impoverishment of the blood or previous blood loss is the essential factor in the causation of this commoner variety of so-called white leg.—*Transactions of the Obstetrical Society of London*, Vol. xxxvii. (1895), *p.* 163.

92.—DIAGNOSIS OF URETERAL AND RENAL DISEASES IN WOMEN.

By Howard A. Kelly, M.D.
Professor of Gynæcology and Obstetrics in the Johns Hopkins University, Baltimore, Md.,

[The diagrams given in Dr. Kelly's paper are omitted here.]

I. *Inspection.*—Inspection is limited to the orifices of the ureters and notes :—(*a*) the appearance of the orifice and its immediate surroundings; (*b*) the character of the fluid discharged from the orifice; and (*c*) the character of the flow, whether absent, intermittent, or continuous. Inspection is accomplished by placing the patient in the knee-breast position, or elevating the pelvis and introducing a cylindrical speculum, 10 millimetres in diameter. The bladder at once fills with air, and all parts of its lining mucosa are accessible upon directing into it the rays of a good light held over the sacrum, by means of a head mirror. The ureteral openings are found at the base of the bladder, about 2 c.m. from the internal ureteral orifice, and at an angle of 25 to 30 degrees to the right or left.

(1) The appearance of the orifice in inflammatory disease of the ureter and kidney is often characteristic; being deeply injected, or pouting, mammillated, or swollen and œdematous. A small area of ulceration may sometimes be seen in the bladder at the orifice. In tubercular cases, when the disease descends from the kidney down to the bladder, the first infection is apt to be distributed about the ureteral orifice over a triangular area with its apex at the ureter. The explanation is obvious; this is the area which comes first into contact with the urine from the infected side in its concentrated form, before dilution with the opposite urine and before distribution over the wide area of the bladder.

(2) The character of the fluid as it is seen issuing from the ureteral orifice may be sufficient in itself to settle the diagnosis and determine the treatment, but before reaching a decision it is necessary to examine both ureteral orifices, watching them for a few minutes, until there is an escape of fluid. If no discharge takes place from one side, it may sometimes be started, when there is a renal tumour, by bimanual compression of the tumour

in the flanks. I recall in this connection, cases of hæmaturia in which bloody urine was seen flowing out from one side while the other discharged clear urine. In one case there was a layer of blood over the floor of the bladder, and the first and natural suggestion was that the vesical mucosa was the source of the hemorrhage. But upon cleansing it with a little pledget of cotton, the mucosa was discovered to be normal. Both ureteral orifices were surrounded with blood, but on one side the flow of normal urine kept clear a little path of uncovered mucosa, immediately in front of the opening, showing that that side was sound. In a case brought to me by Dr. H. B. Marriott, of Battleboro, North Carolina, we saw thick pure pus issuing from the right ureter, and limpid urine from the left. I operated and removed a large number of stones from the right kidney. I have repeated this experience many times.

(3) Normally, with the patient in the knee-breast position, the urine flows in clear jets, spurting out and often down the speculum. If there is a prolonged delay in the discharge from one side there must be some stoppage there. When the discharge is purulent, it simply oozes from the opening and may continue to run out for a considerable time without intermission.

I would call attention to the important fact that, with the patient in the knee-breast position, the fluid escaping from the ureters can be collected for microscopic and chemic examination, as it trickles down the speculum, without catheterising either ureter.

II. *Catheterisation of the ureters.*—Catheterisation of the ureter is but a step beyond inspection, and by my method the ureter can be catheterised almost as easily as it can be seen. I must insist upon careful attention to aseptic details throughout this procedure. These are in brief:—(1) A clean external urethral orifice; (2) the introduction of an aseptic speculum; (3) a ureteral orifice cleansed with a pledget of cotton saturated with a boric acid solution; (4) a sterile ureteral catheter not contaminated by handling; (5) avoidance of contamination of the catheter during introduction; (6) placing the sterile end of the catheter in a sterile test tube to collect urine as it flows from the ureter without contamination.

In order to catheterise the ureters the patient kneels upon a table or a bed with a board under the blanket to keep the surface flat. Then with the speculum introduced into the bladder the right or left ureteral orifice is found and kept within the lumen of the speculum, while the metal catheter is taken up by its outer end and slowly passed in. The end of the catheter is pushed on up to the ureteral orifice under constant observation, until it touches it; it is then engaged and gently pushed in toward the pelvic wall. Any resistance felt must not be overcome by force, but by withdrawing the

catheter slightly and pushing it in a little different direction. It will generally be found, after the catheter has advanced two or three centimeters, that it is necessary to draw the speculum out a little, and then carry the point of the catheter more directly outward toward the pelvic wall. The speculum is then wholly withdrawn and the catheter left in as long as desired. If the patient is turned over on her back, this must be done with extreme care, to avoid striking the end of the catheter and wounding the ureter.

To secure uncontaminated urine for bacteriologic investigation, the outer end of the sterilised catheter should be protected by a sterilised piece of rubber tubing before introduction. This can be taken off after the catheter is in place, and the urine which flows over the end can be collected without admixture with extraneous elements. I sometimes sterilise the end which has been touched during the introduction, by holding an alcohol flame under it until the escaping drop of urine boils on it.

Although the simple metal catheter is easier to handle in the introduction, I prefer, as less dangerous and therefore more to be recommended for general use, flexible silk ureteral catheters which I have had made, 30 cm. long and $1\frac{1}{2}$ to 2 mm. in diameter. These have a large eye below a conical point which is easily pushed up 15 or 20 cm. beyond the ureteral orifice. If kept in a cool place the catheter is stiff enough to push up the speculum and into the ureter without the aid of a stylet, with which a soft catheter may also be easily introduced. Short metal catheters 6 cm. ($2\frac{1}{2}$ in.) long, with fine rubber tubing on the end, introduced on a stylet, is also often convenient when both ureters are to be drained.

To put a catheter into both ureters, one may be catheterised first and the speculum taken out entirely and reintroduced alongside the catheter, when the opposite ureter may be exposed and catheterised in the same way. The patient may then be turned on her back without fear of the catheter coming out, and the urine drained from right and left ureters into separate receptacles. It is important to note the time of the flow, so as to establish a relation between the kidneys which is quantitative as well as qualitative. To collect uncontaminated urine from these and the renal catheters, to be described, a piece of sterile fine rubber tubing is slipped over the end to protect it from the handling during the introduction into the ureter. Then when the patient is in the position in which she will remain during the flow, the rubber sleeve is drawn off and the end of the catheter placed in a sterile tube plugged with cotton. I have found a simple wooden block with a hole bored in it the easiest way to keep the tube in place. A good way of making the connection between the tube and the catheter is by

a piece of fine glass tubing, twisted to reduce the chances of atmospheric infection. The rubber sleeve is then simply drawn over this instead of being pulled off.

I would ask those who follow me in this work to adopt my enumeration of catheters and specula, by their diameters in millimetres, because this gives at once a better idea of the size used. Short metal catheters are also useful in draining both ureters. They are only 5 cm. long, and are pushed in with a stylet up to the very end, so that the catheter lies wholly in the ureter and bladder. The urine is carried out by a piece of fine rubber tubing on the end of the catheter.

Catheterisation of the Pelvis of the Kidney.—My renal catheters are 50 cm. (20 inches) long, and $1\frac{1}{2}$ and 2 mm. in diameter. In special cases I use still larger sizes. They are introduced in the same way as the ureteral catheters, but are pushed up until the end impinges on the upper part of the pelvis of the kidney. Their special field of usefulness is in demonstrating the condition of the pelvis of the kidney, whether infected or not, and whether there is or is not an obstruction at the upper end of the ureter. By means of the renal catheters I have completely evacuated a hydronephrosis. I have also emptied a renal pelvis full of pus, and by forcing fluid back into the kidney have washed out the pelvis repeatedly, and cured a pyelitis. After using these soft catheters, they are washed out well with warm water, and then with a one to 1,000 solution of mercuric bichloride, and carefully dried and put away in glass tubes about 8 mm. in diameter and enough longer than the catheter to plug the ends with cotton. During the introduction the glass tube is presented over the left shoulder for the right ureter, and the right shoulder for the left, with the end of the catheter projecting a little out of the tube. This should be dipped in boro-glyceride to facilitate introduction. In order not to infect it with the fingers during the introduction, I wear sterilised rubber cots on thumb and first finger, put on just as I am ready to grasp the end of the catheter and draw it out of the tube push it in, up into the ureter. The glass tube is held still while the catheter is being withdrawn.—*Journal of the American Medical Association, August* 17, 1895, *p.* 272.

93.—LEUCORRHŒA: ITS CAUSES, VARIETIES, AND TREATMENT.

By Thomas More Madden, M.D.,
Obstetric Physician to the Mater Misericordiæ Hospital, Dublin.

[Abstract of paper read before Obstetric Section, Royal Academy of Medicine, Ireland:]

The subject of leucorrhœa is one deserving of fuller consideration than is generally accorded to it. In a large proportion of instances the symptom that first directs attention to the ordinary forms of gynæcological disease is some abnormal mucoid exudation from the genital canal. Such symptomatic discharges are frequently so prominent a feature of those cases, or are so obscure in their causation, so intractable in their treatment, or so far-reaching in their consequences, as to occasion many of the diagnostic therapeutic difficulties encountered in this special branch of practice. It may, therefore, not be useless to review, from the standpoint of a somewhat long clinical experience, our knowledge of the general pathology of leucorrhœal complaints, their various forms, their common course, possible results, and the methods available for their treatment. In this connection no special reference need be made to those mere hyper-secretions from the genital mucosa, that, irrespectively of any pathological condition, may be physiologically occasioned by the local hyperæmia normally consequent on ovulation or pregnancy, or by the menopause. The term leucorrhœa should therefore be restricted to such non-hemorrhagic or mucoid discharges from any portion of the genital lining membrane as contain morphological or other elements foreign to healthy mucus, and that are of pathological significance.

Vulvar Leucorrhœa.—This, according to the writer's observation in the Children's Hospital, Dublin, with which he had been connected for twenty-three years, is most frequently brought under notice in pediatric practice, and more usually is of constitutional or strumous origin, although it not also unfrequently arises from topical causes, whether catarrhal or simple inflammatory traumatic or specifically infective, such as gonorrhœa. From whichever of these causes vulvar leucorrhœal discharges may arise, it too often happens that they are ignored, or not submitted to proper treatment in their early stages. The frequent result of this is the ultimate extension of the complaint to the uterus or its appendages, and hence in after years in numberless instances cases of dysmenorrhœa, sterility, endouterine, and tubal disease are brought under gynæcological treatment that might have been obviated by due attention to the leucorrhœal troubles of early life.

Vaginal leucorrhœa may be ascribable either to any of the local exciting causes of genital hyperæmia, or to any abnormal constitutional condition by which the tonicity of the vaginal vessels is so impaired as to give rise to non-hemorrhagic exudation therefrom. The most common of the former causes are catarrhal and simple inflammatory vaginitis; and next in frequency is gonorrhœal infection. The distinction between

these is generally a matter of difficulty, or is often an impossibility in actual practice, and in many instances we must rely more on the history, symptoms, and probabilities of the case than on any differentiation from the readily ascertainable presence or absence of gonococci in the discharge. Whether specifically infective or not, however, the treatment of these cases is practically identical. In either instance our primary object should be to secure as far as possible the asepsis of the affected parts by the free use of warm antiseptic injections, such as lysol or boric acid (1 in 25), or corrosive sublimate (1 in 2,000), so as to sterilise and cleanse the vaginal surface from the discharge which, even if not specifically infective, if allowed to accumulate or decompose they must act as a direct source of irritation, as well as a possible nidus for pathogenic micro-organisms by which the entire genital tract may be infected. In the second place, the same indications may be carried out most effectually immediately after each douching by vaginal insufflations of loretin, salol, or boric acid powder, or so-called "dry treatment." And, thirdly, the parts in the intervals between these applications should be kept well separated by strips of antiseptic gauze saturated with dilute liquor plumbi, or with hazeline, the patient in the meanwhile being restricted to bed, and placed on such constitutional treatment as may be indicated in each case.

Vaginal as well as uterine leucorrhœa may, moreover, also occur, irrespectively of any recognisable local cause of irritation or hyperæmia, as the result of anæmia, chlorosis, strumous diathesis, and other general constitutional conditions, or as a direct consequence of arrested menstruation, lactation, or as a distinct metastasis of gouty and rheumatic disorders, &c. In this connection the vaginal leucorrhœa of pregnancy may also be mentioned, as, although commonly it should be regarded as a physiological consequence or symptom rather than a disease of pregnancy, in some instances it assumes a more serious form, and in the latter months often gives rise to most distressing pruritus of the pudendum. For the relief of this the writer would again suggest the local application of the methylene blue lotion, which he has recently recommended as one of the best of all topical analgesics in pruritic affections generally.

Cervical leucorrhœa is very frequently of special importance in connection with the causation of obstructive dysmenorrhœa and sterility, in which cases the cervical canal may be so sealed by an abnormally viscid and hyper-alkaline exudation from the Nabothian follicles and cervical endometrium as to interpose mechanical obstacles to either menstruation or conception. In our local treatment of such cases, therefore, our chief reliance should be placed on the free use of the cervical curette, before

which the writer recommends the thorough dilatation of the canal by means of his rapid dilator, and immediately after curetting then applies iodized phenol or salol bougies to the affected surfaces. Lastly, in this, as in all other forms of chronic leucorrhœa, it is most essential that whatever topical measures are found necessary should be conjoined with these general remedies which may be specially indicated by the constitutional state of the patient, by which such discharges are often occasioned, or to which still more frequently their continuance is due. In many instances of this kind a mild course of bichloride of mercury given in tincture of bark is especially serviceable. In the greater number of cases, however, chronic leucorrhœa is essentially a disease of debility, and for its curative treatment requires the exhibition of ferruginous tonics, as well as rest, general and local, together with suitable hygienic and dietetic measures. For a complaint so many-sided in its etiology as this, it is needless to observe that there can be no special remedy. Nevertheless, in a large proportion of instances Dr. More Madden has derived more distinctly beneficial results from the long-continued employment in small doses of arsenical preparations or combinations, such as Donovan's solution, than from any other class of medicine employed in the constitutional treatment of chronic leucorrhœal cases generally.

94.—A MODE OF MORE EASILY AND RAPIDLY DILATING THE CERVIX OF THE UNIMPREGNATED UTERUS.

By James Braithwaite, M.D. London,
Obstetric Physician and Surgeon to the Leeds General Infirmary.

Dilatation of the unimpregnated uterus is necessary chiefly for two purposes, namely, for the treatment of certain cases of dysmenorrhœa, and in order to examine the uterine cavity with the finger for diagnostic purposes. The object of the following short paper is not to estimate the value or utility of dilatation, or to consider in what cases it should be done, but to point out that, when it is done for either of the above reasons, the time chosen should be the last day of the menstrual period, just when the discharge is ceasing or has ceased. The directions given as to the best time for dilatation in text-books, if any are given (and usually there are none), are to dilate between the periods, and this, I believe, is the universal practice, and it is the one myself always at one time followed. I have generally dilated

with smaller-sized Hegar's dilators until some resistance is met with, which usually occurs when Nos. 9 or 10 are reached. Then a large laminaria tent is introduced, or possibly two or even three smaller ones. On the next day the dilatation is completed by the larger-sized Hegar's, and if a most unyielding os internum is met with, Reid's screw dilators are employed. I believe, however, that this plan is a mistake as to the time chosen, and, as a sequence of this, a mistake as to the mode of operating.

The os internum between the periods firmly resists dilatation, and only yields to considerable force. All who have tried the use of laminaria tents must be familiar with their appearance when withdrawn, showing a narrow ring corresponding to the tight undilated os internum, all the rest of the tent being fully expanded. Moreover, as stated, it takes two sittings on consecutive days to dilate with tents and dilators, and even then it is often very imperfectly accomplished. Not infrequently a rise of temperature and rigor will follow the introduction of a tent, and the continuance of these symptoms with pain may necessitate its early removal.

Rapid dilatation without tents in the intermenstrual interval must necessarily be imperfect, for if done by Hegar's, or Galabin's, or Duncan's dilators, great upward pressure is required to introduce them when the larger sizes are passed, and this pressure may be, and frequently is, so great as to cause the vulsellum or hook used to steady the anterior lip of the uterus to lacerate it, and possibly tear out. If the dilatation is begun with Hegar's dilators and continued with Reid's screw dilators, the power is so great that the narrow parts must yield ; this, however, cannot be called dilatation, but stretching, and is probably accompanied by minute lacerations of tissue. Unless the dilatation, in whatever way it is done, is thorough, a permanent cure does not result in dysmenorrhœa, and is insufficient to admit the finger if diagnosis is the object.

Many years ago I found out accidentally that if the dilatation is done on the last day of the period, just when the discharge has ceased, the parts are perfectly elastic and soft, and have very little resisting power.

Hegar's dilators can in many cases be passed in, one after the other, until No. 17 is reached. This admits of the passage of a medium-sized index finger. An anæsthetic is necessary, as the patient would not remain sufficiently quiet. Two Sims's hooks close together, so that the handles are held as one, are better than a vulsellum. They hold better, and are less likely to scratch the operator's finger. The process should be done leisurely, but it does not take above twenty minutes.

The smaller sizes of the dilators should have the terminal inch a little curved forwards and less in size, so as to enter more readily. This plan opens up quite a vista of utility in other cases than those of dysmenorrhœa; for instance, it is often next to impossible to examine with the finger the interior of the uterus of a sterile woman over 40. The parts absolutely refuse to dilate sufficiently. But by dilating on the last day of the period it can be done very easily. Every uterus does not yield so readily as described, and, indeed, now and then a tough cartilaginous os internum is met with which almost refuses to yield at all, but even this is more dilatable than it would be in the intermenstrual interval.

A very interesting case of menorrhagia was recorded some years ago which had been under two of the most eminent men in the country, and in which subsequently the womb was removed entire on the Continent. It was then found that the cause of the hemorrhage had been a small fibroid not as large as a boy's marble. This had never been diagnosed.

Another case was read before one of the London Societies, in which vaginal hysterectomy was performed in consequence of incurable hemorrhage. It was thought to be cancer of the uterine cavity; but on examination of the uterus after removal the cause was found to be a small fibroid polypus projecting into the cavity near one cornu. In these cases, if the finger could have been inserted for examination no doubt it would have been.

By adopting the plan recommended such examinations become easier, although such small fibroids, and so situated as in these two cases, must always be very difficult to diagnose. Much assistance is given by curving the intra-uterine finger well forwards and pressing the fundus down upon it by the right hand outside. For this purpose the patient should lie on her left side, as the recti muscles are thereby relaxed. It might be supposed that the anæsthetic would cause sufficient relaxation; but it often does not.

In conclusion, the advantages of the plan recommended are:—(1) Danger from sepsis by the use of tents is avoided; (2) inflammation, if rise of temperature with rigors and much pain indicate it—traumatic rather than septic—is also avoided; (3) the process, both to patient and operator, is more easy, and is incomparably quicker; (4) less structural injury is done to the parts, as they dilate more kindly and without much resistance; (5) the dilatation is more complete and perfect, so that if used for dysmenorrhœa a permanent cure is more likely to result, and, if for diagnostic purposes, examination is possible in cases in which otherwise it would have been impossible.—*British Medical Journal, June* 29, 1895, *p.* 1438.

95.—ON SOME DIFFICULTIES IN THE USE OF THE CURETTE.

By Fancourt Barnes, M.D., F.R.S.E.,
Consulting Physician to the British Lying-in Hospital.

[The following is taken from Dr. Barnes' paper read before the British Gynæcological Society. The illustrative cases are omitted :]

It should be borne in mind that, curetting being a severe operation, and attended by certain grave risks, is not to be undertaken lightly in any case. The several steps in the operation may appear simple, but from time to time complications arise during or after the operation which call for all the resources of skill and experience. If the operation of curetting the uterus is to be efficiently and safely performed, it is essential that the cervix be sufficiently dilated to admit the entrance of the index finger of the operator into the cavity of the uterus. Except, therefore, in early post-mortem cases, where the cervix has not yet contracted, preliminary dilatation is necessary.

There are two methods of dilating the cervix, the rapid and the gradual. Rapid dilatation is effected by the successive introduction of Hegar's graduated dilators until the cervix will admit the passage of a finger. This is, of course, done under an anæsthetic. The most convenient position is the perineal, the patient being on her back, with the knees drawn up and held by assistants. The cervix is then seized with a volsella to steady it, while the graduated sizes of dilators are passed in succession along the cervical canal into the uterine cavity. At the best this is a somewhat rough manœuvre, and with the most delicate handling involves more or less laceration of the os and cervical canal. The extent of genuine dilatation which can be accomplished in this way is always limited, even in the most favourable cases, that is, in those where the tissues are elastic. When the uterine tissue is more fibrous and inelastic than usual the proceeding resolves itself into a simple forcing and tearing apart of the cervical tissues. In any case there must be bruising. This, of course, may give rise to unnecessary hemorrhage, as well as subsequent perimetric inflammation. Lastly, the tisssues thus lacerated clearly add to the other dangers, an additional entrance for septic matters. It is chiefly for these reasons that I most frequently select the gradual method of dilating the cervix.

The gradual method of dilating the cervix is the one which most closely follows the course pursued by Nature. By the

gradual dilatation, not only are the dangers just enumerated avoided, but a much further degree of dilatation is obtained, a vital point in curetting. Gradual dilatation is obtained by the use of tents, and, as a rule, requires about twelve hours to accomplish. For this reason it is most convenient to begin the dilatation overnight by the introduction into the whole length of the cervical canal of laminaria tents. I use laminaria tents in preference to sponge tents for the following reasons :— The laminaria tent is in itself aseptic, and even antiseptic, by reason of the chlorides, bromides, and iodides with which it is impregnated by the sea water in which it grew. Under the influence of the moisture in the cervix it gently but surely swells up and dilates the canal. At the end of three or four hours it is usually possible to push up one or more fresh tents alongside those in the cervix, or to remove the tents first applied and insert a fresh relay. This can be repeated the next morning, and three hours later the cervix will usually be dilated sufficiently to admit the free passage of the finger into the uterine cavity.

Of course the same result may be arrived at by the use of sponge tents, but there are several grave objections to their use. Sponge tents should be emphatically condemned. In the first place sponges are very difficult to thoroughly cleanse. One of the chief difficulties in dilating the cervical canal is to be found in the internal os uteri. To more easily overcome this I employ laminaria tents of at least four inches in length, and of various sizes. The advantages of a long tent are, in the first place, that it is introduced more readily than the short are, and can often be passed in without speculum or tent introducer by the fingers alone ; secondly, it is easier to remove.

The cervix being dilated, the patient is anæsthetised and placed either in the left lateral or dorsal position for operation. If a tent is still in the cervix it is removed and a vaginal douche is given. The index finger of the operator is then passed into the uterine cavity, the fundus of which is pressed down on to it by the other hand outside the abdomen. The whole of the uterine walls and angles are then explored. In this way all irregularities or excrescences are detected, or the presence of retained placental tissue is made out. The finger-nail may be gently used to detach these excrescences, and it is on the whole the safest and best curette to employ, in addition to its being an intelligent and sentient guide. It is not always sufficient, however, and it then becomes necessary to employ a curette. There are two chief kinds of curette, the sharp and the blunt. Simons' spoon curette and Sims' sharp curette represent the first; Thomas's blunt wire curette and the finger represent the second.

Simons' spoon curette is a very efficient instrument, particularly useful in carcinomatous and sarcomatous conditions, especially of the cervix, where it is desired to ablate a considerable thickness of tissue. On the other hand, used in endometric conditions, it requires care and has often in heedless hands caused perforation of the uterus. The curette is passed into the uterine cavity as far as the fundus, and being laid parallel with the wall it is made to traverse in succession every part of the anterior, posterior, and lateral walls of the uterus and all its angles. The degree of force required can only be learned by experience, but the minimum consistent with efficiency is always to be aimed at. Some parts of the mucosa may be perceived to be roughened, by the thrill imparted to the hand holding the curette, and to such localities particular attention should be paid. There is generally considerable oozing, which washes down into the vagina shreds of mucous membrane detached by the curette. Pieces of placental tissue may sometimes be recognised among them by the naked eye. When the uterus has been curetted an intra-uterine douche is employed. I generally use a weak solution of tincture of iodine in the proportion of one or two drachms to the pint. The douche is administered through a gum elastic male catheter attached to a Higginson's syringe. The catheter is passed up to the fundus and the dilated cervix allows a free return of the injected fluid. This removes all clots and *débris* that may be left in the uterine cavity, and in addition is an efficient antiseptic and hæmostatic. Where there is reason to suspect the presence of tissue liable to become septic it is useful to insert a pencil of iodoform of about two inches long into the uterus. This not only acts as an antiseptic, but assists in draining the uterine discharges.

There are several definite risks in the operation of curetting. As first practised by Récamier, sharp curettes alone were employed, and in consequence of the comparative frequency with which perforation ensued, the operation came to be regarded askance. With the blunt instrument this accident can hardly occur, unless it be from rough usage; and there is reason to believe that in some cases no harm has followed from perforation of the uterine wall. Perforation is a risk which care may avoid, and which antiseptic methods have rendered less dangerous than before. Cervical atresia has followed curetting in exceptional cases. Troublesome hemorrhage may occur at or soon after operation, but can be controlled by the application of pledgets of gauze or tampons steeped in some hæmostatic solution, such as perchloride of iron or tincture of iodine. The more serious and troublesome complications of curetting are the possible sequelæ. Pelvic peritonitis and cellulitis have frequently

been observed, and are probably due in every case to absorption of septic matter by the uterine lymphatics either at the time of operation or as the result of decomposition of the uterine discharges after operation. The proneness of the cellular tissue which is so abundant in the pelvis to become infected in this way is but too well known, and an unfortunate result can in many instances only be avoided by continuous and full antiseptic precautions. It is easy to say these dangers should never arise, but those who can say so have never seen difficult or complicated cases.—*British Gynæcological Journal, August,* 1895, *p.* 178.

96.—EARLY DIAGNOSIS OF CANCER OF THE CERVIX UTERI: A PATHOGNOMONIC SIGN.

By W. J. Sinclair, M.A., M.D., M.R.C.P., Professor of Obstetrics and Gynæcology, The Owens College, Victoria University, Manchester.

[The following is taken from a paper read before the North of England Obstetrical and Gynæcological Society, June, 1895 :]

For the prompt and efficient treatment of the cases which come under our observation in the early and favourable stage, we largely depend upon some definite and easily applicable method of diagnosis. If in any given case under examination the results obtained by palpation and the closest inspection are such as to leave any doubt in the mind of the practitioner as to whether the condition is or is not early cancer of the cervix, the doubt will, in my opinion, be invariably cleared up by ascertaining the amount of friability of the tissues. If the suspected portion be thoroughly exposed by a suitable speculum, and the uterus held steady by the volsella, if the disease is malignant, a firm scrape with a sharp curette or spoon will enable the examiner to obtain a definite distinct piece of tissue, larger or smaller according to the extent of the infiltration and consequent friableness of the tissue thus operated upon. If it is not malignant, the firm scrape with the sharp curette will only make the parts bleed, and, at the most, some small thin shred or pellicle of semi-translucent epithelium or of granulation will be obtained. The difference is very strikingly brought out by comparing the effects thus produced upon a case of old chronic cervical catarrh with hypertrophy, ectropium, and retention cysts, with the effects produced by similar forcible application of the spoon to the tissues in the early stage of

epithelioma. The existence of this contrast, with its easy application to diagnosis, is of the greatest importance in general practice, inasmuch as chronic cervical catarrh, complicated with the other tissue changes just mentioned, is almost the only condition met with which is at all likely to be mistaken for early epithelioma of the cervix. If we take, for example, the two cases shown in the water-colour drawings [the reference to drawings of typical cases made before operation], the characteristic difference does not appear on simple inspection. In the case of malignant disease the ring of the external os is complete, and the diagnosis by simple inspection would have to depend upon a mere *nuance*, an indescribable difference in the colour of the mucous lining and of the discharge of the os in the two cases respectively. A comparison between the results which were obtained by palpation would not have brought us anything further towards the completion of a differential diagnosis. In both cases there was a certain element of hardness, unevenness, and irregularity in the consistency of the tissues about the external os: in both there appeared to be some hypertrophy of the cervix, but there was nothing, as far as touch was concerned, that would justify one in saying that one case was malignant and the other was not. From certain facts in the clinical history of the malignant case the nature of the disease was suspected, and the test of the sharp curette was applied. The instrument cut through from inside the os downward to the vaginal surface of the portio as through a piece of moist cheese, and although a microscopic examination of the tissues was made, the diagnosis was completed by the effects of the curette, taken in conjunction with the other clinical facts, quite independently of the histology. On extirpation of the uterus the condition shown in the annexed drawing was discovered, that is to say, there was extensive breaking down of the tissues of the cervix uteri, extending even above the internal os.

Quite recently I had the opportunity of dealing with a case which formed a striking illustration of the application of this method of diagnosis, where the clinical history, the appearances, and the results obtained by palpation all tended to support the diagnosis already confidently arrived at before the patient was sent to me, viz., that she was suffering from epithelioma of the cervix uteri. There was, on the posterior lip of the deeply lacerated cervix, a considerable area apparently devoid of epithelium, with an irregular indurated margin studded with small retention cysts, some of which were ulcerating. The test of the sharp curette was applied with a negative result, that is to say, the suspected surface was merely made to bleed, and only some thin particles of epithelium were scraped away. A distinct mass of friable uterine tissue was not obtained; nevertheless,

the appearance of the hypertrophied eroded posterior lip was so suspicious that it seemed as if an exception to the rule had been found, and therefore the test had failed for all. The patient was kept in bed for several days, and medicated tampons were applied in order to thoroughly cleanse, and as far as possible modify, in a healthy direction, or otherwise, the appearance of the suspected area. The change which took place was of small avail for completing the diagnosis, and the sharp curette test was again applied, with the same result. It was, therefore, decided to proceed with Emmet's operation, as the most effective method of dealing with the laceration and hypertrophy, inasmuch as the definite conclusion was reached that the erosion and other changes could not be owing to malignant disease. In performing the operation, which was duly carried out, the incision on one side invaded the margin of the ulcer, and this was followed immediately by a gush of the fluid characteristic of a retention cyst of the cervix, and the hard and apparently hypertrophied posterior lip at once became flaccid and greatly diminished in bulk. This retention cyst of the cervix was the largest that I have ever seen. The operation was completed, the patient made a perfect recovery, and I heard some weeks afterwards, from her medical attendant, that the symptoms which originally caused alarm had subsided, that the uterus appeared perfectly healthy, and it was almost impossible to make out the points of union in the ring of the perfect external os.

As this is a mere preliminary note, I do not care to illustrate the method or to elaborate further. I have applied it myself for about ten years and have never found it to fail. The suitable application of it presupposes a reasonable amount of knowledge of the diseases of the female sexual organs, and the due consideration and appreciation of all the relevant clinical facts in any given case; when any doubt still remains in the mind of the practitioner, the effects produced by the sharp curette or spoon should finally settle the diagnosis.—*Medical Chronicle, August*, 1895, *p.* 342.

Drugs, Food Stuffs, and Instruments.

Burroughs, Wellcome & Co.

Tabloids of Salivary Gland (Burroughs, Wellcome & Co.).—Although experimental records are wanting regarding the action of the various salivary glands as internal secretors, their structure affords much evidence of other functions than those of producing the amylolytic ferment and of preparing the food for gastric digestion. The gland is a mixed one, containing serous or albuminous structures, mucous glands, and secreting protoplasmic cells. The Tabloids are carefully prepared and ready for clinical use. They are being employed by clinical observers. It has been suggested that other glands may act vicariously for these when they are removed. But when this function is inactive the natural active agent may be readily replaced by the use of the Salivary Gland Tabloids.

Tabloids of Lymphatic Glands (Burroughs, Wellcome & Co.—Since it is highly probable that the active principle internally secreted by these glands may be effective in accelerating a cure in glandular diseases which have their origin not in diathesis but in the organic structure of the glands. They have been employed by physicians in cases of lymphadenoma, or Hodgkins' disease, and in exophthalmic goitre, or Basedow's disease, and in other glandular swellings of various kinds.

Tabloids of Pancreas Substance (Burroughs, Wellcome & Co.).—The pancreas is a gland of somewhat peculiar structure. The peculiarity consists in its epithelioid tissue. This is composed of isolated patches of highly vascular secreting epithelium possessed by no other gland in the body which has an excretory duct. Besides the production of pancreatic juice the pancreas has other functions. Frerichs and Rokitansky found that certain changes in the gland produced glycosuria. Minkowski and Von Mering found that complete removal of the gland was followed by diabetes even in fasting animals. This phenomenon was proved not to be due to the secreting part of the structure. If a very small portion of the pancreas were left the diabetic symptoms were restrained and did not make their appearance, even, indeed, if a portion of pancreas were only grafted into any portion of the peritoneal cavity. The material which prevents the formation of sugar is therefore not formed by the secreting portion of the gland, but most probably in this epithelioid tissue. It affects carbohydrate metamorphosis very powerfully, and many instances have been recorded of diabetes in man having been benefited by the Tabloids of pancreas substance.

The effect obviously is brought about by the Tabloids supplying to the blood a material produced by the islets of epithelium, without which the carbohydrate metabolism of the tissues is profoundly perverted.

Tabloids of Ovarian Substance (*Burroughs, Wellcome, & Co.*).—These Tabloids have been prescribed in functional diseases arising from disorders of the ovary, and are exhibited in cases when the functions of that gland have been interfered with by operation, and in the nervous manifestations and irregular tissue changes which follow the menopause.

Valules of Red Bone Marrow (*Burroughs, Wellcome & Co.*).—Red bone marrow substance is credited with the formation of blood principles, the absence of which produces those diseases in the blood tissues of which the pathology is so ill understood. Their administration appears to be justified in hyperfluidity or non-coagulability of the blood elements, as in hæmophilia, hæmaturia, hæmatemesis, or in diminution of the pigments or corpuscular elements of the blood as in anæmia (simple or pernicious), leucocythemia, chlorosis, oligæmia, &c. In debilitating blood-destroying fevers they are specially indicated, and after severe diseases of nutrition or inflammations of bone.

Tabloids of Uterine and Fallopian Tube Substances (*Burroughs, Wellcome & Co.*).—These have been prepared and have been administered in those diseases and cachexiæ which appear to be the direct sequelæ of the removal of the uterus and its appendages.

Tabloids of Ox Bile (*Burroughs, Wellcome & Co.*).—These Tabloids are made from ox bile from which the tissue debris, mucilaginous matter and unnecessary colouring principles have been separated. The emulsifying and disinfectant properties which bile possesses, and the stimulating principles which act on the muscular tissue of the intestine, are therefore supplied in a convenient form. Its use is indicated in conditions of emaciation, arising from deficiency or cessation of the secretion of bile due either to organic disease of the liver or obstruction of the bile ducts. In order to avoid the irritating effect of bile on the mucous membrane of the stomach, the Tabloids have been coated with keratin which only dissolves in the alkaline medium of the intestines some distance from the duodenum.

Tabloids of Taurocholate of Soda (*Burroughs, Wellcome & Co.*).—After a long series of experiments we have been enabled to overcome the tendency of this drug to deliquesce, and to produce it in Tabloid form.

Anti-Diphtheritic Serum Exsiccated (*Burroughs, Wellcome and Co.*).—The bulky nature of the injections which doctors using anti-diphtheritic serum are required to carry about with them is considered one of the chief objections to this method of treatment.

Messrs. Burroughs, Wellcome & Co. were the first investigators to discover a method of preparing a scale serum which when dissolved in two and a half or three times its weight of water maintained the full potency of the liquid serum of the laboratory. One great advantage of the dried preparation is that it can be used with smaller and less formidable looking syringes than those which are used for injecting such large quantities as 20 c.c. of the serum. It is issued in the form of beautiful, lustrous, golden scales and keeps far better than the liquid form. It is, therefore, specially adapted for transport to tropical countries. It has been exported in large quantities to Africa, Australasia, India, and the East. Each bottle contains an adult dose of the serum and bears a label on which is registered the date of issue, the immunising power per body weight, and the signature of the bacteriologist who is responsible for the guarantee. There would seem to be a wide future in store for this carefully prepared and accurately standardised preparation.

Soloids of Permanganate of Potash (*Burroughs, Wellcome and Co.*).—Permanganate of Potash has long been recognised as a deodorant and disinfectant of very general application both in the surgery and household. By compressing this useful chemical into Soloids, Messrs. Burroughs, Wellcome & Co. provide ready and portable means for the rapid preparation of solutions of definite strength. One Soloid dissolved in an ounce of water makes a solution of the approximate strength of the liquor potassii permanganatis, B.P. These Soloids will prove particularly useful for prompt preparation of solutions for the treatment of foul ulcers, urethral and vaginal injections, gargles and mouth washes ; for the purpose of deodorising fœtid or decomposing animal excreta, or as an antidote to phosphorus poisoning, and as a remedy for immediate application in dog bite. As a deodoriser and disinfector of animal matter permanganate of potash is especially useful because it also tends to disintegrate organic substances with which it comes in contact.

Aseptic Hypodermic and Instrument Case (*Burroughs, Wellcome and Co.*).—This is a convenient case made of leather and covered inside with a smooth impervious coating. Loops and pockets are attached for the reception of unsterilised instruments and appliances after use, in which they can be placed to await thorough sterilisation. When the instruments have been removed the case can easily be rendered aseptic by cleansing with a 1 in 1,000 solution of corrosive sublimate.

Anti-Diphtheritic Syringe. — The discovery by Messrs. Burroughs, Wellcome & Co. of a method of preparing a dry anti-diphtheritic serum of full potency in the form of scales has rendered it possible for a smaller size syringe to be used for the purposes of injection. The bulky 20 cc. glass barrels

are no longer necessary, and accordingly a smaller syringe to hold 10 cc. has been introduced. This is made on the same principle, and finished in the same excellent manner, as the older instrument.

Loretin (*Meta-Iodo-ortho-oxyquinoline-ana-sulphonic Acid*).—According to the report of Professor Schinzinger at the Nuremberg Scientists' Congress in 1893, this is an antiseptic substance which is specially adapted for use as a substitute for iodoform. It occurs in the form of an impalpable brownish-yellow powder. Unlike iodoform, it is completely odourless. It has the further great advantage of not producing the slightest toxic effects, or causing eczematous appearances on the skin. It may be used equally well as a dusting powder or as an insufflation to be blown into cavities, &c. ; the healing of a wound treated with it is usually not accompanied by fever or suppuration. It is manufactured by Messrs. Meister Lucius and Brüning, of Hoechst-am-Main.

Phenosalyl.—This is a clear, syrupy liquid, consisting of a mixture of benzoic, salicylic, and carbolic acids, melted together and dissolved in lactic acid. It has been used by Duloroy for the sterilisation of instruments, of gauze, and of different organic substances, as well as to prevent decomposition of urine or the saliva of consumptives, with most encouraging results. A communication by Professor Fraenkel summarises the advantage of Phenosalyl over other antiseptics, as follows :—(1) Easy solubility in water ; (2) no danger of toxic symptoms ; (3) a pleasant and non-persistent odour which does not adhere to the hands or clothes ; (4) no corrosive action on skin or mucous surfaces. It is manufactured by Messrs. Meister Lucius & Brüning, Hoechst-am-Main.

Peptogenic Milk Powder (*Fairchild*).—This powder, when added to diluted cow's milk, to which cream has also been added, will bring it to about the same strength and composition as human milk. When infants are deprived of their natural food the Peptogenic Milk Powder is peculiarly adapted for the preparation of an accurate and perfect substitute for use during the whole of the nursing period. The milk prepared in this way has the digestibility of mother's milk, and is thus obviously the proper food for both healthy and sickly children up to the age of nine months—the natural period of weaning. It is made by Messrs. Fairchild Brothers & Foster, of New York, for whom Messrs. Burroughs, Wellcome & Co., of Snow Hill Buildings, London, E.C., are the agents for Europe, Asia, Africa, and Australia.

Panopepton (*Fairchild*) is prepared by Messrs. Fairchild Brothers & Foster, of New York, and consists of the entire edible substance of prime lean beef and best wheat flour, cooked,

digested, sterilised, and concentrated *in vacuo.* The trimmed and cooked beef is subjected to digestion strictly to the point of complete solution of both its gluten and starch. Panopepton is, therefore, the quintessence of peptones, containing all the nutrients of these two great types of food, beef and bread, combined with a delicious restorative. The uses of Panopepton are so obvious that it is only necessary to suggest the many directions in which it is indicated as a food: in acute and wasting diseases; in protracted convalescence; in anæmia; in feebleness or deranged digestion, or where there is antipathy to, or inability to gain sufficient nourishment from, ordinary foods. It should not be mixed with any other food, but is best taken pure. Messrs. Burroughs, Wellcome & Co. are the European agents for this preparation.

Pepsencia (*Fairchild*).—A solution of the essential organic ingredients of the gastric juice, extracted directly from the peptic glands of the stomach by Messrs. Fairchild Brothers & Foster, of New York. This digestive essence possesses remarkable activity, and is superior to the usual wines, elixirs, &c., of pepsin, which are made from saccharated pepsin, and which often contain but the merest trace of the true digestive ferment. It is a powerful digestive of milk, albumen, fibrin, and gelatine. It exhibits in a remarkable degree the coagulating power upon milk, which has been shown by physiologists to be characteristic of the gastric juice. Messrs. Burroughs, Wellcome & Co. are the agents for this preparation for all countries on this side of the Atlantic.

Tabloids of Nuclein (*Burroughs, Wellcome & Co.*).—In this convenient form are now being prepared Nucleins, the proteid bodies containing a large amount of phosphorus, which, when injected hypodermically, are stated by Huber to increase the number of white corpuscles in the blood. Tabloids of Nuclein (1 grain) are being tried in chronic rheumatism, neurasthenia, nervous prostration, chronic catarrhal bronchitis, and suppurative tonsillitis.

Tabloids of Caffeine Comp. (*Burroughs, Wellcome & Co.*).—These Tabloids contain four grains each of a mixture of three parts of antipyrin and one part of caffeine. They are recommended in megrim and in neuralgia of the fifth nerve.

Tabloids of Sulphite of Magnesium.—The sulphite of magnesium has been introduced by Dr. Brownlow-Martin for destroying the diphtheritic membrane. Of the antiseptic properties of this sulphite there can be no doubt, and the tabloid introduced by Messrs. Burroughs, Wellcome & Co. is a convenient way of using the remedy.

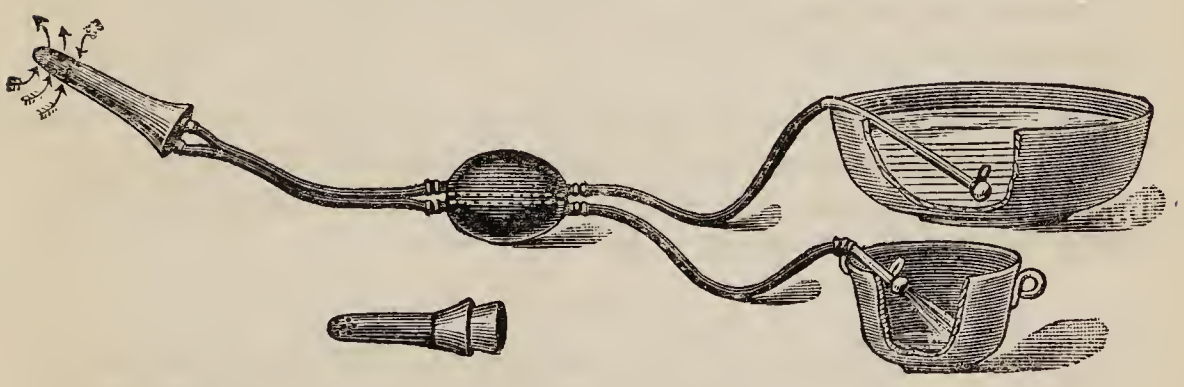
Menthol Snuff.—This preparation, introduced by the above-named firm, contains cocaine ($\frac{1}{6}$ p.c.), ammonium chloride, camphor, and lycopodium. The composition of this snuff is such as to promise it a wide sphere of usefulness in various forms of nasal disease.

Ophthalmic Tabloids of Tropacocaine.—Tropacocaine has been recommended by Mr. T. J. Bokenham for ophthalmic practice. It has the anæsthetic properties of cocaine without dilating the pupil. It is most useful in relieving the pain of distension or that arising from drugs like pilocarpine or painful myotics. Their small size is a decided recommendation.

We have also received from Messrs. Burroughs, Wellcome & Co. a sample of the *Perfected Wyeth Beef Juice.* The preparation is so well known to the profession that it is hardly necessary to do more than refer to it. Notwithstanding the competition of recent years it still holds its own. Half to one teaspoonful is equivalent to $1\frac{1}{2}$ to 3 oz. of clean lean beef. It makes a clear solution in cold water which is decidedly palatable.

MESSRS. INGRAM & SON.

We have received from this firm the "Vonda" Ladies' Syringe. It is an alternate douche and suction syringe. A vaginal nozzle, over which can be passed an adjustable india-rubber ring, is connected with a compressible bulb by two india-rubber tubes. These tubes emerge on the far side of the bulb and are placed: one in the injection fluid and the other in the waste basin. When the apparatus is filled with water, compression of the bulb forces the water into the vagina while it escapes by the other tube owing to an arrangement of valves. The following illustration will make its mode of action clear.



This syringe obviously possesses advantages over the ordinary vaginal douche, not the least of which consists in the arrangement made for not soiling the bedclothes with the injection fluid.

Messrs. Oppenheimer, Son & Co.

Bipalatinoids of Fehling's Test.—We have tested these bipalatinoids. They answer to the points claimed for them, that is, if one is dropped into a fluid containing even small quantities of sugar a blue colour is developed on boiling which is rapidly changed into a muddy yellow. We find the process accelerated by crushing the bipalatinoid against the bottom of the test tube with a glass rod. It certainly appears a very convenient way of applying Fehling's test.

Palatinoids of Thyroid Powder.—These palatinoids also appear to be a very pleasant way of administering this agent. Each palatinoid is equivalent to five grains of fresh gland.

Palatinoids of Thyroid Gland Powder.—These palatinoids appear to be the most truly scientific form in which to prescribe "active animal substances," as these glands and tissues, unless enclosed in an hermetically sealed envelope, are exceedingly prone to decomposition (even though dried). In the palatinoid form they are tasteless, pleasant and easy to take, the safety of the patient is secured from ptomaine poisoning, and the form of medication, otherwise nauseating, is thus rendered free from every objection.

Palatinoids of Pituitary Body Substance.—Each is equivalent to 2 grains of fresh body, and possess the same thereapeutic value as those of thyroid gland by virtue of being put up in an air-tight envelope. They have been recommended in certain forms of insanity, idiocy, acromegaly, and myxœdema.

Palatinoids in Red Bone Marrow.—Equivalent to 5 grains in each of fresh red marrow substances, which has gained some reputation in the treatment of simple and pernicious anæmias.

Palatinoids of Suprarenal Capsule, containing the equivalent of 5 grains fresh adrenal in each. A permanent and reliable form in which to administer this potent remedial agent in such cases as diabetes insipidus and Addison's disease.

Palatinoids of Ovarian Tissue.—Each equivalent to 5 grains of fresh ovary. A most efficient and reliable method of administering this active substance.

Palatinoids of Cerebrinin.—Each equivalent to 5 grains fresh brain tissue (grey matter). A safe form in which to prescribe this clinically active substance.

Mr. John Morgan Richards.

We have received from Mr. John Morgan Richards a specimen of Lactopeptine Tablets. Lactopeptine has been in use for so long a time and is naturally much prized as containing the active agents of digestion. The tablet form renders its administration still more easy. One tablet contains five grains, and two to four tablets may be taken by adults after meals.

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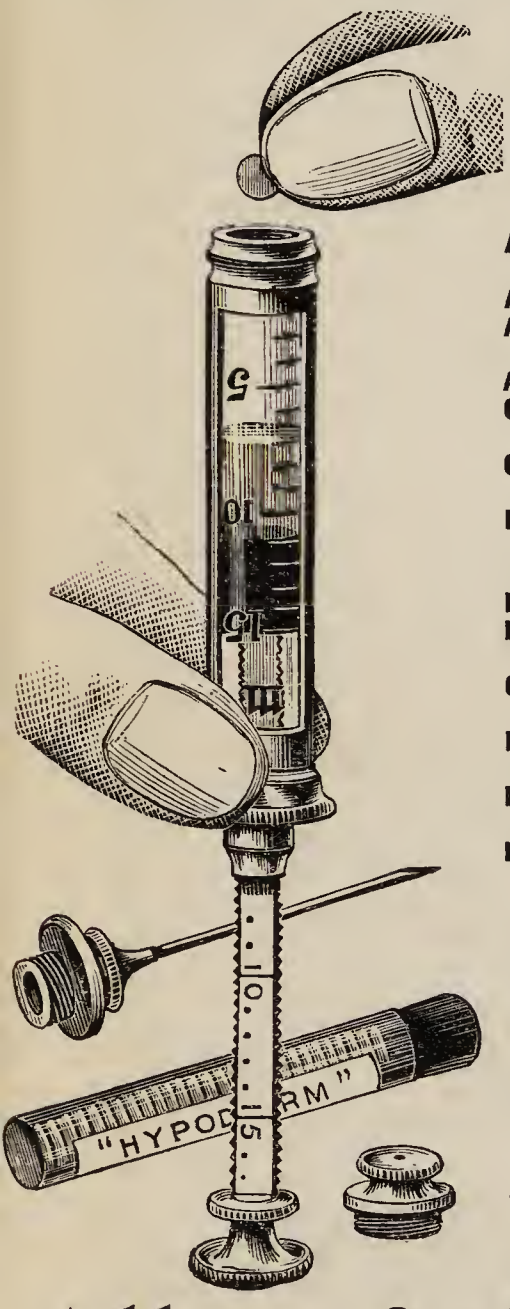
Compressed Tabellæ of drugs for HYPODERMIC MEDICATION.

For convenience in administering a great variety of drugs by hypodermic injection our HYPODERMS will be found unsurpassed, and have within the last few months been still further greatly improved. They dissolve in water almost *instantaneously*, *no trituration* or *heat* being required. The dose is exactly known. The drug is in its purest form. Provided that the Syringe and Needle are kept quite clean, and that distilled water is used, no subcutaneous irritation or inflammation can follow their use. The active properties of the drug are unimpaired for any length of time.



The *Lancet* writes: "The following advantages claimed for the 'Hypoderms' are found to be perfectly true—they dissolve easily and rapidly in a minimum of water without the aid of heat or trituration, yielding at once, if preferred, in the syringe itself a uniform solution of the drug; whilst, of still greater import, they contain, according to analysis, the exact amount of active ingredient they are stated to contain." (See rest of article for exact analysis of Hypoderms, June 6th, 1891).

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Digitalinum gr. $\frac{1}{100}$. Morphinæ Sulphas gr. $\frac{1}{8}$.
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Eserinæ Salicylas *vide* Physostigmina.
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Homatropinæ Hydrobromas gr. $\frac{1}{200}$.
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Hyoscyaminæ Sulphas gr. $\frac{1}{50}$.
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Morphinæ Sulphas gr. $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$.
Morphinæ Sulphas gr. $\frac{1}{8}$. Atropinæ Sulphas gr. $\frac{1}{200}$.
Morphinæ Sulphas gr. $\frac{1}{6}$. Atropinæ Sulphas gr. $\frac{1}{180}$.
Morphinæ Sulphas gr. $\frac{1}{4}$. Atropinæ Sulphas gr. $\frac{1}{140}$.
Morphinæ Sulphas gr. $\frac{1}{3}$. Atropinæ Sulphas gr. $\frac{1}{120}$.
Morphinæ Tartras gr. $\frac{1}{8}$, $\frac{1}{4}$.
Physostigminæ Salicylas gr. $\frac{1}{100}$.
Picrotoxinum gr. $\frac{1}{100}$.
Pilocarpinæ Hydrochloras gr. $\frac{1}{10}$, $\frac{1}{2}$.
Quininæ Hydrobromas gr. $\frac{1}{2}$.
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Other strengths and formulæ are frequently added and can be made to order. Put up in small tubes at 10s. per doz.

The Hypoderms may be dissolved in the syringe itself, thereby ensuring absolute accuracy of dose and saving of time to the practitioner.

Hypodermic Syringes and Cases in great variety. Any special form not in stock made to order. Fittings altered to suit individual taste. Illustrated Price List on application.

Physicians desiring to prescribe Hypodermic Tabellæ as manufactured by Allen & Hanburys, are requested to use their term "Hypoderm" and to add the initials "A. & H."

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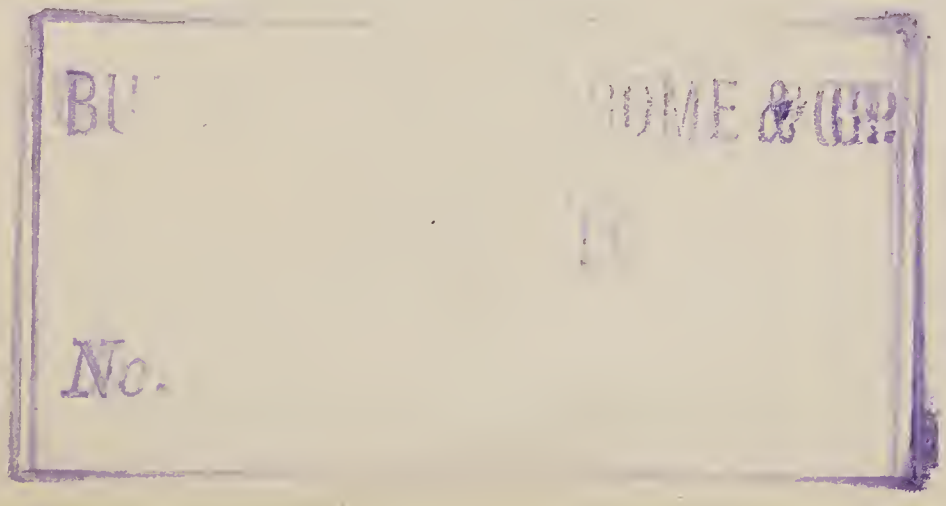

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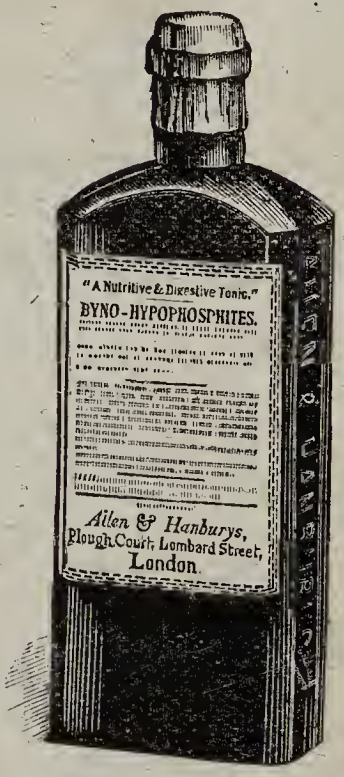

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